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ABSTRACT

CAI201, a training program that takes students through the training program design process, is conducted via computer assisted instruction (CAI), and is directed toward the individual who has been charged with designing a training program but who lacks an understanding of how to proceed. This manual provides the program designer with background information to assist him or her in performing the program design steps: actual performance of these steps is accomplished by use of the worksheets and forms contained in the companion manual, "The Design Documentation Package." At the end of the course, the student should have designed a training program. Available at any time, the course may be taken at the student's own pace: it runs under the IBM program products, ITS and IIS. (Author/JEG)

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TRAINING PROGRAM DESIGN

STANDARDS MANUAL

by

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We gratefully acknowledge the following from which selections are quoted herein, and which provided a good base for this publication:

Computer Based Training User Guide, International Business Machines Corporation, April 1975

Effective Training, International Correspondence Schools (Scranton, Pa.) 1969

Mager, Robert F., and Kenneth M. Beach, Jr., Developing Vocational Instruction, Fearon Publishers (Palo Alto, Ca.) 1967

Mager, Robert F., Preparing Instructional Objectives, Fearon Publishers (Palo Alto, Ca.) 1962

In addition, we wish to recognize the many Xerox Training Program Designers and CAI Course Authors who, over the past 5 years, have provided a considerable amount of input to make this publication possible.

TRAINING PROGRAM DESIGN

STANDARDS MANUAL

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PURPOSE

The purpose of this manual is to provide the training program designer with background information to assist him or her in performing the training program design steps.

Actual performance of these steps is accomplished by use of the worksheets and forms contained in the companion manual, "The Design Documentation Package" (hereafter referred to as the 'DDP').

This manual and the DDP support the design of any training program regardless of the media ultimately selected. This manual explains and provides examples of the forms in the DDP.

Before beginning the design steps, it is appropriate first to discuss how people learn and why it is important that training program design be approached in a systematic manner.

HOW PEOPLE LEARN

In designing a training program, it is important that the designer understand the learning process and how people learn. There are three types of learning:*

- Acquiring knowledge or understanding -- gaining ideas, principles, concepts, or facts.
- Acquisition of abilities or skills. This may refer to either mental or physical abilities or skills, such as specific habits or ways of doing things.
- Acquisition of attitudes -- of interests, appreciations, and ideals.

Of course, all three types of learning are related and may occur even though the training is directed at only one type of learning. For example, you may be interested in having an individual learn new abilities or skills; however, by improving an individual's skill (or way of doing something), a change in understanding and/or attitudes may also occur.*

A simple definition of learning and the one which we will use is: the process of acquiring skills, knowledge, and/or attitudes. Let's see how this definition applies.

The old theory that adults can't learn as easily as children has been disproved by modern research. People can learn effectively and at all ages. However, the way in which adults learn differs significantly from the way in which children do.* While children are more dependent students, storing what they learn for use in later life, adults learn primarily for the purpose of applying it in their personal and professional lives - and fairly immediately. Adult learning research shows that a good deal more learning occurs with adults when the learning situation recognizes their adult self-concept, treats them with respect, considers each a unique human being, and allows them to make their own decisions as to how the learning applies.

* "Effective Training", International Correspondence Schools (Scranton, Pa.) 1969, pp. 15-16 (with permission)

Here are some points to keep in mind:*

1. Adults must want to learn. Children may learn something because someone -- a teacher, a parent -- says they should. Or they will study, simply to avoid getting a failing grade, even though the subject holds little interest for them. Adults, however, will not learn something just because someone says they should: They must have a desire to learn a new skill or to acquire knowledge.

2. Adults will learn only when they feel a need to learn. They are practical in their approach to learning: they want to know how the training is going to help them now. They are not interested in something that may be of value ten years from now. They respond best if you teach them, simply and directly, what they want to learn.

3. Adults learn by doing. Research has shown that if students immediately practice what they have learned, and continue to use it, learning retention is much higher. They should be encouraged to discuss realistic problems, think out solutions, practice a skill, etc. If students do not have opportunities to be involved actively in learning, within a year they will probably forget 50 per cent of what they learned in a passive way -- i.e., by reading or listening. In two years, they will have forgotten 80 per cent. In fact, some studies indicate that within 24 hours they will have forgotten 50 per cent of what they heard the previous day, and, within two weeks, an additional 25 per cent.

4. Experience affects adult learning. Students relate their learning to what they already know. If the new knowledge doesn't fit in with previous knowledge, they will probably reject or dismiss it.

5. Adults learn best in an informal environment. If the environment is too much like a classroom, students may not learn as well. Many adults have unpleasant memories of their school days; others feel they have finished school, and they do not care to be reminded of it. Also, if the environment is too 'school-like', adults are likely to think the whole situation is childish.

6. Adults respond to a variety of teaching methods. They learn better if an idea is presented in many ways. Of course, the method used will depend on what is being taught and on the desired objectives.

7. Adults want guidance, not grades. True, they want reassurance that they are making satisfactory progress. This is important to them, but grades or tests may be frightening. Adults tend to shy away from tests because of the fear of being humiliated of not doing well. Also, many times the standards they set for themselves are too high, and they become discouraged. Sincere praise and guidance from the instructor will help prevent this.

* Ibid., pp. 16, 18-20

Learning is an active, positive process accomplished through the individual's own activity. The training program designer contributes to the learning process by acting as the agent who makes things happen. The goal of any training program is to promote change in those being trained. The change may be in things known (knowledge); it may be in comprehension (understanding); it may be in things valued (appreciation); it may be in things done (skills) or it may be in things wanted (interest).*

The training program designer's role could be summed up as follows:

- To ensure that an educationally sound and performance oriented teaching-learning process is created.
- To produce positive and measurable change in student behavior.

In short, remember that we teach people, not a subject. The subject matter of a class is really the student, not the knowledge. The trainer's knowledge is a tool, the means by which he or she makes things happen; the knowledge is not the product. If the tool is skillfully used, the participant's needs will be met and learning will have taken place.*

* Ibid., p. 20

THE SYSTEMATIC APPROACH TO TRAINING PROGRAM DESIGN

Most people would agree that a training program ought to be both effective and efficient. Especially in the business environment, students should learn to be masters of their job. They should be capable of performing their job, not after two years, not after one year, but immediately after completing the training program. In addition, students should be able to perform the job after the least amount of instructional time and with the smallest investment of money.

A key question being asked by the business community today is:

"How can a cost-effective training program be produced?"

In recent years, many companies have found a possible answer to this question in a process called the 'systems approach'. The approach is essentially a direct application of engineering production techniques to training program development. To illustrate, consider the process used to produce a new product.

- Product Design: A market survey is conducted to determine the needs for a new product line. Based on these needs, a design is produced that provides specifications detailing, 1) what the product should be capable of doing, 2) how well it must do it, and 3) the conditions under which it must operate. A plan for the features and the appearance of the new product are also drawn up at this time.

- Product Development: The individual assemblies of the prototype model of the product are constructed in accordance with the design and tested in the laboratory against the design specifications. Based on the results, the prototype assemblies are modified. Perhaps design specifications are altered. Some features may be dropped, others added. Eventually a working model is produced.

- Product Implementation: A model is produced and evaluated in the field. Additional modification may be necessary.

- Product Maintenance: Based upon user input, subsequent production models are modified and retrofit changes are made to existing models. Performance evaluation is a continuing process. In the final analysis, the ability of the production model to operate properly and reliably in the field setting is the measure of success of the new product line.

The application of the systems approach to training results in the same four-phase process.

During training program design, an analysis of the job or job function requirements and of the student characteristics is conducted to determine the particular training needs. Based on these needs, a design is produced that provides 'behavioral' specifications detailing:

1) What the course graduates should be capable of doing,

2) How well they must do it,

and

3) The conditions under which they must perform.

A plan indicating the instructional techniques to be used in the program and the organizational structure of the program is also drawn up at this time.

During the development phase, the individual instructional units of the program are constructed in accordance with the design and tried out with sample students. Based on the ability of the sample students to achieve the desired behavior, instructional units are revised, methods are changed, training program organization is altered, or the desired behavior may even be modified. Eventually a valid training program is developed.

The training program then goes through implementation and is introduced to a 'live' environment.

Following successful implementation of the training program, the maintenance phase begins. Student performance must continually be checked against behavioral objectives. Also, behavioral objectives are compared with the actual job or job function and its requirements to insure that the objectives continue to be appropriate. Evaluation is a continuing process. The ability of the program to reliably produce graduates who can function properly on the job is the measure of the program's success.

The systems approach provides an orderly, logical, comprehensive and documented method for designing, developing, implementing and maintaining training programs.

DESIGN OF THE TRAINING PROGRAM

This manual presents a systematic approach to the design phase of a Training Program. Training Program Design is intended to insure that all the information and practice necessary to perform the job or job function are included in the training program. This is accomplished by going through the following design steps:

Function Analysis
Task Analysis
Audience Assessment
Media Assessment
Behavioral Objectives
Prerequisites
Criterion Measurement
Basic Curriculum Structures
Detailed Curriculum Plan

The Design Phase makes up approximately 70% of the total training program development effort. The design steps begin with the job or job function itself rather than with content. Use of this approach is most important to our pursuit of constructing a performance-oriented curriculum.

The Function Analysis step involves describing, in general terms, what someone does when performing the job or job function.

The second step is to specify that performance in finer detail, listing each of the tasks of which the job or business function is composed and identifying the steps involved in performing each of these tasks. This step is called the Task Analysis.

In the next step, Audience Assessment, the student population is described, as it exists, rather than as we would like it to be.

Knowing now the what and who to be trained, the next step is to determine the possible hows. This involves looking at available means by which the material can best be presented. This step is called Media Assessment.

The next step, Behavioral Objectives, determines what is the expected end behavior of the students upon completion of the training program.

Prerequisites are then addressed to answer the question:

> "Now that we know where the student is expected to be and whether or not he or she got there, how far along is the student already?"

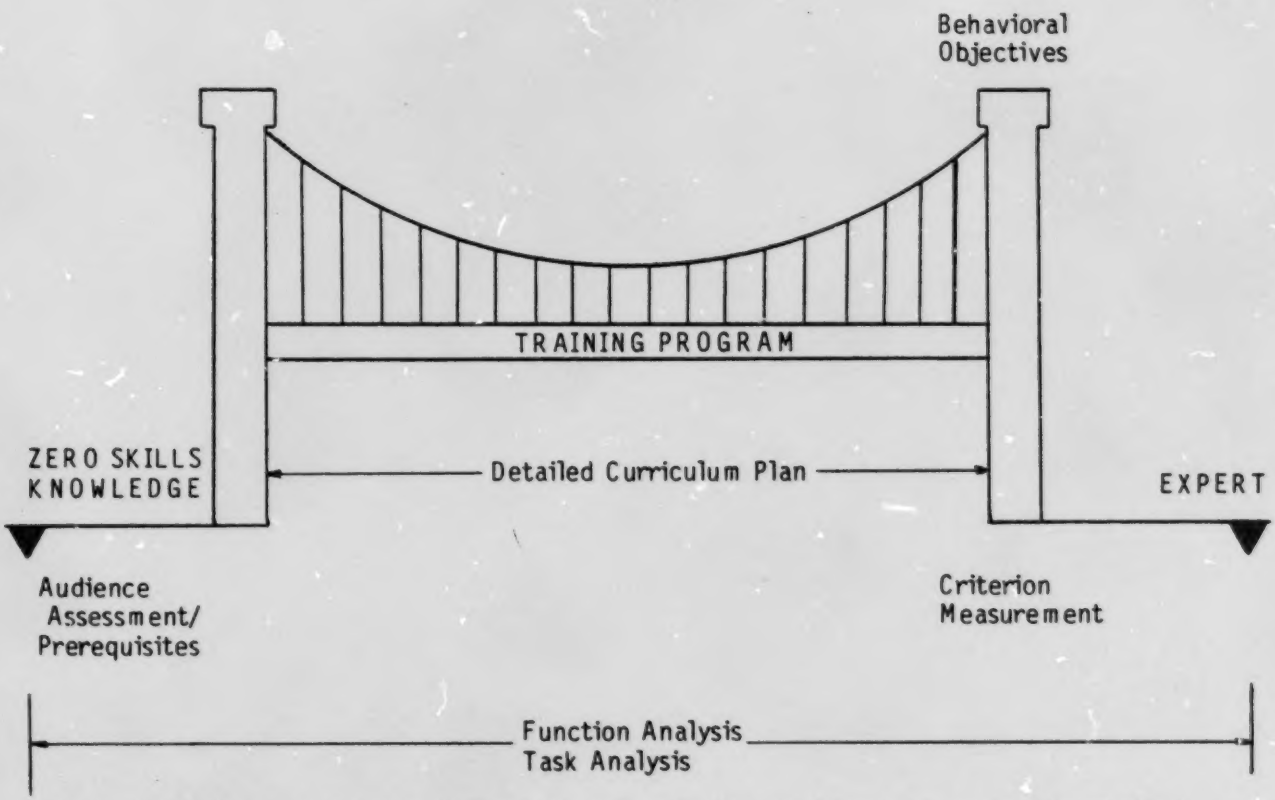
Prerequisites define the starting point ... objectives define the end-point. The difference between what we have (prerequisite skills) and what we want (objectives) is the gap which instruction should be designed to bridge.

Criteria are then developed with which to measure the achievement of the behavioral objectives identified. This step is referred to as Criterion Measurement.

Consideration is then given on how to structure the material identified during the previous steps. This is covered in the "Basic Curriculum Structures" section.

Lastly, the Detailed Curriculum Plan is prepared where final sequencing takes place, specific media are selected, and an outline of the curriculum is prepared in detail.

The diagram below depicts the relationship and inter-relationships of each of the design steps on the overall design process.



The Training Program should bridge the gap between what is already known and the defined objectives of the training program.

The first two steps of Training Program Design assist the designer in identifying all of the components of the subject to be trained.

First, let's look at Function Analysis...

FUNCTION ANALYSIS

The first step in Training Program Design is to perform a job or job function analysis. A job analysis is a general statement of the functions which make up a job and tells something about the relative importance of the functions and the conditions under which they are performed. Order entry would be a key function performed by an order administrator. It is important to concentrate on identifying each function within the job rather than the job itself because the function may be performed by personnel in various job title positions in different locations. For example, depending upon the location, order processing may be done by Administrators, Customer Service or Marketing Personnel, or some combination of the three.

The primary objective of a Function Analysis is to indicate the functions which require training. If you fail to identify the training required for a function, it most likely will not be learned by the students.

Information about the job functions and the personnel who perform them can be obtained from the following sources:

- Existing training programs.
- Operational or reference manuals.
- Design documentation for training programs that are under development.
- System design documentation that supports the function or activity.
- Discussion with employees doing the job.
- Discussion with managers of employees doing the job.
- Job description documentation.

Please note, that it is important to include all activities that are done on the job, even though they may not relate to the basic skill. If, for example, the job or job function you will be teaching is that of a service technician and if that person is required to fill out certain forms or to do other paperwork, include that fact in the description. If the person on the job is expected to give an occasional guided tour through the work area, include that. The description describes the job or job function <u>as it is</u> ... not as you would like it to be.

A Function Analysis Worksheet (see opposite example) should be prepared for each identified job or job function that the curriculum plans to train. The worksheet and instructions for use are provided in the Design Documentation Package. The worksheet provides for a description of the job or job function to be trained, and a list of all of the functions performed by the person on the job. If only one job function is to be trained, then it would be described in the 'Description' area and would be the only function listed under 'Functions Performed'. The 'Importance' column is provided for the designer to assign relative importance to the various functions identified.

The Function Analysis will provide the base of information needed to accomplish the next key step in Training Program Design which is Task Analysis.

FUNCTION ANALYSIS WORKSHEET

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Function Analysis Worksheet

Job/Function Name
Description

Functions Performed	Importance

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TASK ANALYSIS

Task Analysis is a structured study of the tasks which make up the job functions to be taught (as defined during Function Analysis). The steps which the employee must perform are identified at this point. The objective of the Task Analysis is to determine what tasks need to be taught to keep the business running smoothly. The tasks that you identify during this process will influence every major instructional decision you will eventually make as you design the Training Program.

A task can be defined as one logically related set of actions required for the completion of a job function. A job function may include a number of tasks.* For example, one of the tasks that must be performed by a secretary is that of changing a typewriter ribbon; all of the actions or steps involved in ribbon changing go to make up the complete task. In like manner, one task of the order entry job function is to process orders. The key thing to remember is that Task Analysis should identify the tasks and the steps within a task which may need to be taught. This information is key to the development of an effective, relevant training program, and will be used later in Training Program Design to establish behavioral objectives, and to identify the criteria by which training effectiveness will be measured.

The first step in Task Analysis is listing all the tasks that might be included as part of the job function(s) identified.* The Task Analysis Worksheet has been prepared to assist you in doing this (see example). It is included in the Design Documentation Package.

You can probably list most tasks just by thinking about the function and by looking at the description of it, but don't stop there. Similar to our discussion of Function Analysis, talk with individuals performing the function now and/or watch them actually doing the tasks.*

Use your judgement to determine which tasks are reasonable to include in your list. At the same time, keep in mind that you will probably not be teaching all of the tasks listed in your analysis. Some will be deleted for reasons we will explain later. This will help you to avoid loading your Training Program with irrelevant content. You should consider any procedural documentation that exists as a possible source of step-by-step explanations for task performance. However, procedures can be another training media identified during Training Program Design, and can be prepared from the Task Analysis and other design materials. The important thing is to list all the tasks that go to make up the function.

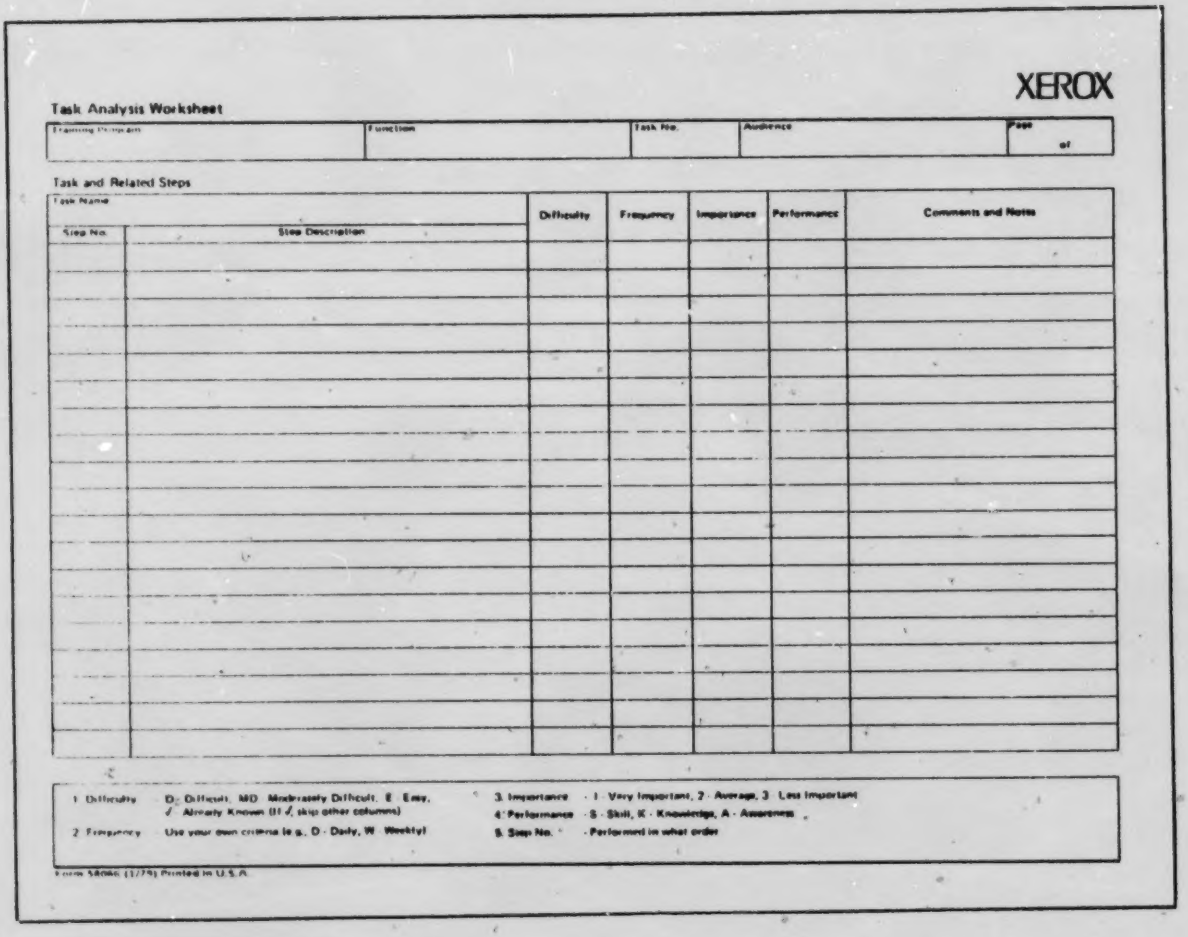
A Task Analysis Worksheet (from the DDP) should be completed for each task. This approach will ensure the identification and analysis of each task, and will provide valuable design documentation for future program evaluation and modification processes.

* Robert F. Mager and Kenneth M. Beach, Jr., "Developing Vocational Instruction", Fearon Publishers (Palo Alto, Ca.) 1967, p. 10 (with permission)

The second phase in the Task Analysis process is to list the steps involved in accomplishing each of the identified tasks.* If this phase is left out, it is possible to spend too much time teaching a difficult but relatively unimportant topic, and to forget to include in the program something that is very easy to teach but that is absolutely essential to learn. List each of the steps in terms of what is done, rather than in terms of what must be known.*

* Ibid., p. 16

TASK ANALYSIS WORKSHEET



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Task Analysis Worksheet

Training Program	Function	Task No.	Audience	Page of

Task and Related Steps

Task Name		Difficulty	Frequency	Importance	Performance	Comments and Notes
Step No.	Step Description					

1 Difficulty: D - Difficult, MD - Moderately Difficult, E - Easy, ✓ - Already Known (If ✓, skip other columns)
2 Frequency: Use your own criteria (e.g., D - Daily, W - Weekly)
3 Importance: 1 - Very Important, 2 - Average, 3 - Less Important
4 Performance: S - Skill, K - Knowledge, A - Awareness
5 Step No.: - Performed in what order

Form 5806A (1/74) Printed in U.S.A.

Ibid., pp 13, 19 (suggested format used to design this form)

Each task will have some steps in common. For example:*

- Recognize when to perform the task.
- Select appropriate tools and materials.
- Locate the correct objects on which to work.
- Perform the safety procedures associated with the task.
- Check the work.

These are important aspects of every task and must not be neglected in the design of the program.

In addition, some skills required to accomplish a task, but not specifically visible when being performed might include the ability to:*

- Identify the sequence of steps that must be followed to perform the task correctly.
- Describe how .....works.
- Describe the theory of why .....works.
- Recognize dangers associated with performing the task.
- Recognize the differences between a properly performed task and an improperly performed task.

For an administrative job function, consider the following as key terms to be used in describing tasks to be performed:

Receive
Edit
Process
Perform Data Entry
Control
Resolve
File

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* Ibid., p. 18

The action words listed below may be of value in identifying tasks to be performed.

After listing the tasks and their associated steps, you are ready to continue on to the next design step -- Audience Assessment. After that, you will return to the Task Analysis Worksheet to complete the remaining columns.

ACTION WORDS

GET

Accept
Accumulate
Buy
Compile
Gather
Get
Keep
Obtain
Pick Up
Procure
Pull
Purchase
Recall
Receive
Secure
Take
Withdraw

STUDY

OR

APPRAISE

Analyze
Check
Compare
Evaluate
Forecast
Identify
Inspect
Interview
Investigate
Measure
Plan
Read
Study
Survey
Weigh

CONTROL

Charge
Check
Conserve
Control
Correct
Count
Edit
Enforce
Follow up
Inspect
Insure
Log
Measure
Prove
Reject
Report
Restrict
Review
Terminate
Verify

WORK

Attach
Change
Conduct
Destroy
Enter
File
Handle
Hire
Insert
List
Locate
Make
Mark
Move
Operate
Perform
Place

Prepare
Print
Process
Produce
Record
Retain
Rework
Run
Separate
Sort
Stamp
Tabulate
Total
Transcribe
Use
Work
Write

CREATE

Create
Devise
Design
Develop
Formulate
Initiate
Install
Originate
Plan
Schedule

GIVE

Deliver
Distribute
Forward
Give
Issue
Mail
Make
Available

Pay
Provide
Release
Route
Sell
Send
Ship
Submit
Supply
Transfer

STOP

Check
Delete
Prevent
Return
Stop

TELL

OTHERS

Advise
Assign
Notify
Order
Prescribe
Recommend
Submit
Tell

EXPLAIN

Describe
Explain
Indicate
Show
State

TIE

TOGETHER

Confer
Contract
Coordinate
Reconcile
Represent
Tie Together

ASK

OTHERS

Ask
Claim
Request

HELP

Aid
Assist
Help
Participate
Protect
Serve

RENDER

DECISION

Decide
Determine
Review
Weigh

TAKE

EXECUTIVE

ACTION

Approve
Authorize
Direct
Establish
Execute
Order
Reject
Require
Sign
Supervise

PUSH

ALONG

Encourage
Develop
Further
Maintain
Push

AUDIENCE ASSESSMENT

As discussed in the previous section, Task Analysis identifies what is to be taught. Audience Assessment, the next step, identifies who is to be taught. The underlying principle of Audience Assessment is to minimize, or possibly avoid entirely, the training effort for those tasks which members of the audience can already perform adequately or could learn quite easily. Audience Assessment contributes information to your Task Analysis. The knowledge that you gain now about your audience will be used in the future when you actually develop the materials to be presented to your students.

Some basic audience types are:

- Management
- New Hires
- Experienced Personnel

These audiences may be located centrally or at remote sites. The designer must consider these audiences and their locations in determining what is to be trained to who. Student needs, viewpoints, and training environments may differ greatly based on these factors.

Another consideration is whether the training is to be for one-time implementation of a new program or system, or whether it is to meet an on-going training program need.

During an implementation training program for example, the new material can be related back to the existing system or level of knowledge for ease of training. The on-going material cannot rely on this knowledge because its primary audience is generally inexperienced personnel.

Let's look at how you may accomplish an audience assessment. Suppose a stranger asked you to tell about the students you have, or expect to have, in one of your programs. What would you say? The things you would say are the things you should consider in describing the audience. Some of the general categories are as follows:

- Experience in the environment or a related one.
- Skills: What can the student do now?
- Motivation:* Are the students generally eager to learn the function(s) you are teaching?

* Ibid., p. 26

- Interests:* What kinds of things are the students interested in? Knowing their interests will help keep them motivated.
- Department(s)/Division(s) involved.
- Number of students requiring training (immediate and long range).
- Attrition rate.
- Location of employees.

The last three elements will become important later in selecting the most economical and effective training media.

Keep in mind, that answering the above questions about the audience may identify training requirements that are prerequisites to some of the tasks defined in your Task Analysis. For example, your program may require telephone skills. Your Audience Assessment may reveal that only a portion of your audience possess them. This type of training impact must be fully evaluated before definition of your training program contents can occur. A complete discussion of this training consideration can be found later in the section entitled 'Prerequisites'.

The more you know about the audience, the more accurately you will be able to derive the content of the program, and the more accurately you will be able to subtract what is known from what needs to be known and taught.*

Finally, your audience assessment should help you determine what levels of audience your program should satisfy.

- Detailed vs. Overview.
- Experienced personnel vs. new hires.
- Generalized vs. restricted.

The Audience Assessment Worksheet (see example on the next page) will help in performing your Audience Assessment. It is available in the DDP.

A systematic approach to Training Program Design must include a thoroughly developed audience assessment. Completion of a suitably integrated audience assessment and task analysis provide the basis from which to define your behavioral objectives.

* Ibid., pp. 26, 27

AUDIENCE ASSESSMENT WORKSHEET

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Audience Assessment Worksheet

Type of Training

	*Greatest Concentration	Comments/Notes
Implementation		
On-Going		

Type of Audience

		Number	
Management			
Experienced			
New Hire			
	Total ➤		

Location

Centrally Located		
Remote Sites		

Previous Training in Subject

☐ Yes		If Yes: ☐ In-House ☐ External
☐ No		

Motivation/Interest

Job Changes		
Back-Up/Cross Training		

Additional Comments

Identify your main audience in each section with narrative in 'Comments'.

*Use "X" to indicate most appropriate category. Use "XX" and "XXX" to indicate relative concentrations within the same category.

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POST-AUDIENCE ASSESSMENT

Having completed the Audience Assessment, it is now appropriate to fill in the remaining columns on the Task Analysis Worksheet.

If you have identified more than one audience to be trained (e.g., management and experienced personnel), make copies of your Task Analysis Worksheets -- one for each audience type anticipated, then evaluate/revisit each listed task and assess its teaching priority for each specific audience.

Complete the remaining columns for each task and task step for each audience.

Difficulty - specify your best estimate of the degree of learning difficulty for the audience being considered. Use the suggested abbreviations. The accuracy with which you can make these judgements is largely influenced by how long it has been since you learned the tasks or steps, and/or the accuracy of information you have gathered about the functions from Personnel and/or the Systems Development/Business Operations organizations. If the information obtained is based on recent experience with the function, it should provide a good base to judge the learning difficulty. If the information is dated, it would be wise to pursue the analysis further. As we are all aware, people who can do things well frequently forget how difficult it was to learn to do them.

It is very likely that the student will already be able to perform some of the steps when she or he arrives for instruction. So that the student's training time is used most effectively, you should ask him/her to perform these steps only as part of the entire task; do not teach him/her these steps separately. Thus, whenever a step is found that the student is very likely to be able to perform, put a check mark in the 'Difficulty' column and indicate in the comments section why training is not needed. Steps thus indicated will be considered prerequisites to program participation. A complete discussion of prerequisites can be found in a later section of this manual.

Frequency - in this column you should indicate how often each task and task step is performed. When completing this column, try not to think about the relative importance of the task or step, just indicate the frequency with which it is performed. Use a recording scheme that fits your own subject matter; for some tasks it is reasonable to write down the number of times the particular task or step is performed each day, each week, or each month. Because a given task may be performed by one person in one location, and by many people in a different location, you should indicate the frequency at which the task must be performed for each location's audience. This information will become very useful in deciding how deeply to go into the subject, how much practice to provide, and how to sequence the training material.

Importance - all tasks or steps are not of equal importance in the performance of a function. Tasks or steps that are performed frequently may not be very important. While other tasks, although performed rarely, are vital to task performance. It is important that critical training requirements be clearly identified in order to maximize student productivity. Indicate the relative importance of the task in the practice of the function. Label each task 1, 2, or 3 to indicate your judgement of importance. Then, you will be able to determine which tasks must be included in the training and which can be left out.

Performance - identify here the type of performance required to perform the task. The three types to be identified are:

- Skill: Something to be physically performed.
- Knowledge: Information required by the student which is essential to accurate completion of the task.
- Awareness: Information required by the student which is helpful to accurate completion of the task.

You have now identified the total possible "what" and "who" to be trained. Now you are ready to look at the "hows" of training - the possible media you will have at your disposal for presenting the material you develop.

TASK ANALYSIS WORKSHEET

Task Analysis Worksheet

XEROX

Training Program for:	Function	Task No.	Audience	Page
ADMINISTRATOR	ORDER PROCESSING	A	NEW HIRES	1 of 1

Task and Related Steps

Task Name: DATA ENTRY		Difficulty	Frequency	Importance	Performance	Comments and Notes
Step No.	Step Description					
1	TURN ON CRT	E	D	2	S	
2	SIGN ON	E	D	2	S	
3	REQUEST OP DATA FILE	E	D	1	S	
4	INPUT ORDER DATA	D	D	1	S	
5	TRANSMIT ORDER DATA	E	D	1	S	
6	SIGN OFF	E	D	2	S	
7	TURN OFF CRT	E	D	2	S	

1. Difficulty - D - Difficult, MD - Moderately Difficult, E - Easy, / - Already Known (If ✓, skip other columns)
2. Frequency - Use your own criteria (e.g., D - Daily, W - Weekly)
3. Importance - 1 - Very Important, 2 - Average, 3 - Less Important
4. Performance - S - Skill, K - Knowledge, A - Awareness
5. Step No. - Performed in what order

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MEDIA ASSESSMENT

This section will identify many possible methods by which training material can be presented.

Before looking at specific training media, it is essential to discuss certain instructional techniques first. These include the following:

- Tutorial (teach)
- Drill and Practice
- Dialogue
- Simulation
- Diagnosis and Testing

Tutorial (teach) - most closely resembles normal classroom practices. Materials are presented in a predictable and structured sequence. Variations to the sequence are dependent upon student responses to questions presented by the instructor.

Drill and Practice - involves the repeated presentation of practice problems. They are generally presented with no instruction and the student is merely told whether the answer is right or wrong. The type and number of problems to be presented may be determined by the quality of correct student answers.

Dialogue - provides for a high degree of two-way conversation between the student and the instructor. In addition to providing instructional material and questions to the student, this strategy also provides problem solving capability.

Simulation - allows the instructor to evaluate any process that can be described in a logical sequence of operations. The instructor can provide models of processes which allow the student to manipulate the variables and receive feedback on the effects of his changes. The student can repeat situations, with variations, as often as necessary.

Diagnosis and Testing - is a technique in which the student is given a problem or series of questions, and then immediately evaluated. It differs from other techniques in that the main objective is not to teach, but to determine the student's level of knowledge or competence. This approach can be used to place the student in the most appropriate training program, to determine where the student needs additional instruction, or to certify an employee's level of performance.

In assessing and comparing various media, you must remember that there is no single "best" medium for all training. In fact, a training program may use more than one medium. The designer must select the most appropriate one for each part of the training program. The actual media selected for consideration at this time should be based on the following:

1) What instructional techniques can the media support?

2) What tasks are we teaching? Task treatment via use of the best medium is a key decision.

3) Where is training required?

4) How many students require training?

5) How much time is available for training?

6) What type of material is to be taught?

and as practical considerations:

7) What media are available?

8) What is the cost of the various media available?

9) What are the development time requirements?

The final selection should be determined by what you are trying to teach and how it can best be taught. This is done during the preparation of the Detailed Curriculum Plan.

There are several self-evident principles with which one must begin in order to effectively address media. They are not "the" answers, but merely the basis for further investigation of the uses of media.

- First, no single medium is likely to have properties that make it best for all purposes.

- Second, the most important single criterion for a choice of medium is often the nature of the objective of the instruction.

- Third, the precise answer to the question: "Which medium?", will not be answered during this phase of media assessment. The final decision will be made during the preparation of the Detailed Curriculum Plan. At this point, you are only "considering" various media.

- Fourth, cost considerations and the development time required may impact the media decision.

Since each instructional medium has specific characteristics or features, it is important to choose the instructional technique that most closely approximates the performance conditions called for by the objective. In addition, select the technique that causes the student to perform in a manner most closely approximating the performance called for on the job.* Select a technique that will allow the student to make the largest number of relevant responses per unit time.**

After those procedures and materials most relevant to desired performance have been identified, the next step is to evaluate instructional media on the basis of administrative criteria. The most appropriate technique isn't always an available technique; the most appropriate technique isn't always practical for the development time or able to be considered because of budgetary limitations.*** The strategy is to pick those techniques most relevant to the type of performance involved, and then make final selections on the basis of availability.

Several different media are commonly available today to support training program development. These are listed below. You should consult with other personnel at your location to identify any that are not available to you.

- Printed Training Manuals
- Classroom Instruction
- Film Presentations
- Audio Cassettes
- Slide Presentations
- Procedure Manuals
- Programmed Instruction (PI) Manuals
- Microfiche
- Video Cassette Recordings (VCR)
- CAI (Computer Assisted Instruction)
- CMI (Computer Managed Instruction)

* Ibid., p. 55
** Ibid., p. 56
*** Ibid., p. 57

Each medium offers distinct advantages for effective delivery of your instructional program. So that you may effectively compare these media against your program and against each other, two charts are provided on the following pages which should give some insight into each medium. The charts identify the following:

- A brief description of each medium type.
- The instructional strategy capabilities and weakness of each medium.
- The flexibility of each in satisfying potential training requirements.
- Development and maintenance considerations for each medium.
- Relative cost of each medium.

Two of the media, CAI and CMI are explained here in some detail. They are covered in the subsequent charts also.

- CAI is Computer Assisted Instruction. With CAI, the instructor makes use of the computer as a means of presenting subject matter to many students simultaneously. As the material is presented to the student via the Cathode Ray Tube Terminals (CRT's) in the user location, the student interacts with the material by keying in responses to it on the keyboard. The computer then analyzes these responses and presents the next appropriate material based upon the instructor's design of the training program. The result is individualized training that the student can take at his or her own pace, that is current, of uniform quality and that is where it is needed when it is needed - in the user location - anytime.
- Computer Managed Instruction - (CMI) makes use of CAI to manage the student training process. The training material may be presented using media other than the computer. The student may be tested at a computer terminal and then directed to some outside assignment, such as a textbook or manual, a videotape, or a laboratory activity. After completing the assignment, the student returns to the terminal for evaluation and additional instruction, remedial material, and/or further assignments. A CMI training program can be developed fairly rapidly since it may make use of instructional materials that already exist.

Chart 1 Media

MEDIA	INITIAL COST	CONTINUING COST	PROBABLE TIMELINESS OF CONTENT	STUDENT ACCESS TO INSTRUCTION	NUMBER OF TRAINEES
CAI	HIGH	LOW	GOOD	GOOD	LARGE
TRAINING MANUALS	MODERATE	LOW	POOR	EXCELLENT	LARGE
CLASSROOM	LOW	HIGH	EXCELLENT	POOR	SMALL
FILMS	HIGH	LOW	POOR	GOOD	LARGE
SLIDES	MODERATE	LOW	POOR	GOOD	LARGE
VIDEO-TAPE RECORDING	HIGH	LOW	POOR	GOOD	LARGE
AUDIO	LOW	LOW	GOOD	GOOD	LARGE
PROCEDURE MANUALS	MODERATE	LOW	POOR	EXCELLENT	LARGE
MICROFICHE	LOW	LOW	POOR	GOOD	LARGE
PROGRAMMED INSTRUCTION	MODERATE	LOW	POOR	EXCELLENT	LARGE

Chart 2 Media

ATTRIBUTE	CAI	PRINTED TRAINING MANUALS	CLASS ROOM	FILMS	SLIDES	VIDEO-TAPE	AUDIO	PROCEDURE MANUALS	MICROFICHE	PROGRAMMED INSTRUCTION
SUITABLE FOR SELF-PACED STUDY	X	X		X	X	X	X	X	X	X
CAN HANDLE LARGE GROUP OF STUDENTS IN A SHORT PERIOD OF TIME	X	X		X	X	X	X	X	X	X
INSTRUCTOR INTERACTION POSSIBLE WITH STUDENT	X		X							
EASILY UPDATED	X		X							
DOES NOT REQUIRE SPECIAL EQUIPMENT		X						X		X
FLEXIBLE SEQUENCE OF PRESENTATION	X		X							X
PRESENTATION STANDARDIZATION	X	X		X	X	X	X	X	X	X
CAN SIMULATE VERBAL SITUATIONS			X	X		X	X			
SOME GUARANTEE OF STUDENT UNDER-STANDING POSSIBLE	X		X							X
CAN BE USED WHERE VISUAL PERCEPTION IS IMPORTANT			X	X	X	X				

Chart 3 Media

COMPARISON OF TRAINING MEDIA

TRAINING CHARACTERISTICS	MEDIA								
	OJT	CLASS	BOOKS	VIDEO	AUDIO	FILM	SLIDES	PI	CAI
PREPARATION TIME	+	+	–	–	–	–	–	–	–
MANY STUDENTS	–	–	+	+	+	+	+	+	+
UPDATABILITY	+	+	–	–	–	–	–	–	+
MANY LOCATIONS	–	–	+	+	+	+	+	+	+
GUARANTEE COMPLETION	–	+	–	–	–	–	–	–	+
STANDARDIZATION	–	–	+	+	+	+	+	+	+
RECORDS MANAGEMENT	–	+	–	–	–	–	–	–	+
INDIVIDUAL-IZATION	+	–	–	–	–	–	–	+	+
EQUIPMENT REQUIRED	+	+	+	–	–	–	–	+	
DISTRIBUTION			–	–	–	–	–	–	+
RESPONSE TO STUDENT QUES.	+	+	–	–	–	–	–	–	+
STUDENT INTERACTION	+	+*	–	–	–	–	–	+*	+

LEGEND:

+ = Limited
+ = Advantage
– = Disadvantage
Blank = No Factor

Do not make the mistake of trying to find one "best" medium that you can use. Try to capitalize on the strengths of each. For instance, you may want to use CAI because it can handle a large group of students in a short period of time, however, you find the weakness of visual perception limiting. Keep in mind a combined media presentation where a workbook or set of slides containing all graphic illustrations can compliment the CAI course. You are only assessing media at this time. You are not going to make any final media selections until later.

When you have generally identified the media you will have available to use for your training program, you have then answered the questions of "what", "who" and "how" on a broad scope. Now you are ready to begin defining your program, and determining exactly where it is that you want it to take your students.

STATEMENT OF BEHAVIORAL OBJECTIVES

All information is now available with which to construct Behavioral Objectives.* When properly constructed, these allow for efficient training program evaluation by the designer, by management, and by the student. A Behavioral Objective describes what we want the student to be able to demonstrate upon completion of a training program. The statement of objectives of a training program must denote measurable attributes observable in the graduate of the program. It should identify the kinds of things which the student must learn in order to become an effective performer in the least amount of time.

When clearly defined goals are lacking, it is impossible to evaluate a course or program efficiently, and there is no sound basis for selecting appropriate materials, content, instructional methods, or measurement tools.

The statement of Behavioral Objectives consists of as many statements, items, or examples as are necessary to describe the desired behavior of the student at the time she/he completes the training program. This behavior reflects the concepts, skills and/or attitudes to be addressed by the program. It is prepared in enough detail so that another instructor could help prepare a student to perform at the proficiency levels desired.*

Behavioral Objectives are based upon your task analysis decisions, but differ from Task Analysis in several ways. Task Analysis describes the task as it is performed by a highly skilled person. Objectives describe the level of performance that will be expected upon completion of the training. For example, while a highly skilled equipment repair person may be able to perform a particular machine adjustment in five or ten seconds without using any aids to be reminded of the steps, it might be unrealistic to expect a recent training graduate to perform as well on the day of training completion. It might be far more realistic to expect the new graduate to be able to perform the task without the use of aids in ten or fifteen minutes or perhaps in five minutes with aids. If the graduate can perform all the steps of the job, and can determine when the job is properly performed, then training has taken place. Practice on the job will improve proficiency.*

Another difference between Task Analysis and the establishment of Behavioral Objectives is in the subject matter itself. Some of the skills called for in performing a job function may be either unrealistic to teach in formal training or are better taught on the job. An example of this might be the organizing of the work area. This task is likely to be so different from one location to another, and so easy to teach (relatively speaking), that it might be a task better learned on the job.* From this you can see that a task does not necessarily become a Behavioral Objective.

* Ibid., pp. 28, 29

The key question to ask is this: what kind of behavior is expected of the student at the end of the training that will most facilitate becoming a skilled performer in the least amount of time?*

A meaningfully stated objective is one that succeeds in communicating to the reader the writer's instructional intent. It is meaningful to the extent that it conveys to others a picture of what a successful student will be like, identical to the picture the writer has in mind. Since a statement of an objective is a collection of words and symbols, it is clear that various combinations may be used to express a given intent. What you are searching for is that group of words and symbols that will communicate your intent exactly as you understand it.

In developing your objectives, remember that there are many 'loaded' words, words open to a wide range of interpretation. To the extent that you use such words, you leave yourself open to misinterpretation. Consider the following examples:**

Words open to many interpretations	Words open to fewer interpretations
To know	To write
To understand	To recite
To really understand	To identify
To appreciate	To differentiate
To fully appreciate	To solve
To grasp the significance of	To construct
To enjoy	To list
To believe	To compare
To have faith in	To contrast

Though it is all right to include such words as 'understand' and 'appreciate' in a statement of an objective, the statement is not explicit enough to be useful until it indicates <u>how</u> you intend to sample the 'understanding' and 'appreciating'. Until you describe <u>exactly what</u> the student will be doing when demonstrating that she/he 'understands' or 'appreciates', you have described very little at all. The statement that communicates best will be one that describes the desired behavior of the student well enough to preclude misinterpretation.

How can you write objectives that will describe the desired behavior of the student?

- First, identify the desired behavior by name; specify the kind of behavior that will be accepted as evidence that the student has achieved the objective.

- Second, define the desired behavior further by describing the important conditions under which the behavior will be expected to occur.

* Ibid., p. 29
** Robert F. Mager, "Preparing Instructional Objectives", Fearon Publishers (Palo Alto, Ca.) 1962, p. 11

For example, instead of simply specifying 'to be able to process Billing Adjustments', we could improve the ability of the statement to communicate by wording it something like this:

> "Given a calculator, the Equipment Billing Pricing Tables, and the Billing Administration Reference Manual, the student must be able to complete a Billing Adjustment."

Other examples of ways in which you could specify conditions during objective attainment include the following:*

Given a problem ...
Given a list of ...
Given a reference of the student's choice ...
Given a matrix of codes and product types ...
Given a report ...
Without the aid of references ...
Without the aid of a calculator ...

- Third, specify the lowest level of acceptable performance by describing how well the student must perform to be considered acceptable. This area is one in which you must revisit the potential media you have available for your program. If you have not selected CAI, classroom or programmed instruction, then you have no guarantee of student understanding. (Recall again, however, that combined media such as a slide presentation combined with classroom testing can help you insure student attainment of expected performance levels.)

  If a student will be expected to perform a task within five minutes upon completion of the training, state this as part of the objective. If performance is expected to be error free or if some error will be tolerated, this should be indicated.

Although each of these three items might help an objective to be more specific, it will not be necessary to include all three in each objective. The intent is to write objectives that communicate; the characteristics described above will help you know when you have done so. You do not work on an objective until it demonstrates these characteristics; rather, you work on it until it clearly communicates one of your intended training outcomes -- and you write as many statements as are needed to describe all of these.

You can test whether a written objective clearly defines a desired outcome by answering 'yes' to the following question:

Can another person select successful students in terms of the Behaviorial Objective so that you, the writer, agree with the selections?

* Ibid., p. 26

The 'Behavioral Objectives/Criterion Measurement Worksheet' has been developed to assist you in preparing Behavioral Objectives for your training program. The worksheet provides example phrases to assist in preparing good objectives. The worksheet and instructions for completion are in the DDP.

BEHAVIORAL OBJECTIVES/CRITERION MEASUREMENT WORKSHEET

XEROX

Behavioral Objective/Criterion Measurement Worksheet

[illegible]	Author Name	Date	Objective No.

Behavioral Objective

Upon completion of this training program . . .

Given a:	Without the aid of:		
•Problem	•A Calculator	The student should be able to:	•Write
•List	•Tables		•Identify
•Reference	_____		•Solve
•Matrix	_____		•List
•Set of Tools	_____		•Compare
•Properly Functioning	_____		•Select
_____	_____		_____
_____	_____		_____

_____
_____
_____
_____
_____
_____

Lowest Level of Acceptable Performance* ➤

*Within 30 minutes. . .
at least 6 times - at least 70% - at least three-fifths

Criterion Measurement

No.	Evaluative Question (s)	Correct Answer(s)	Relative Importance

[illegible] Printed U.S.A.

To summarize, when developing meaningful objectives, keep the following key points in mind:

1) When properly constructed, behavioral objectives allow for efficient training program evaluation by the designer, by management and by the student.

2) A good behavioral objective is a statement that describes an intended outcome of the training.

3) The statement of objectives for an entire program of instruction will consist of several specific statements.

4) An objective is meaningful to the extent that it communicates an instructional intent to its reader, and it does so to the degree that it describes or defines the behavior expected of the student upon completion of training.

5) To describe what the student will be doing upon completion of training:

   A) Identify and name the observable act that will be accepted as evidence that the student has achieved the objective.

   B) Define the important conditions under which the behavior is to occur (givens or restrictions, or both).

   C) Define the lowest level of acceptable performance.

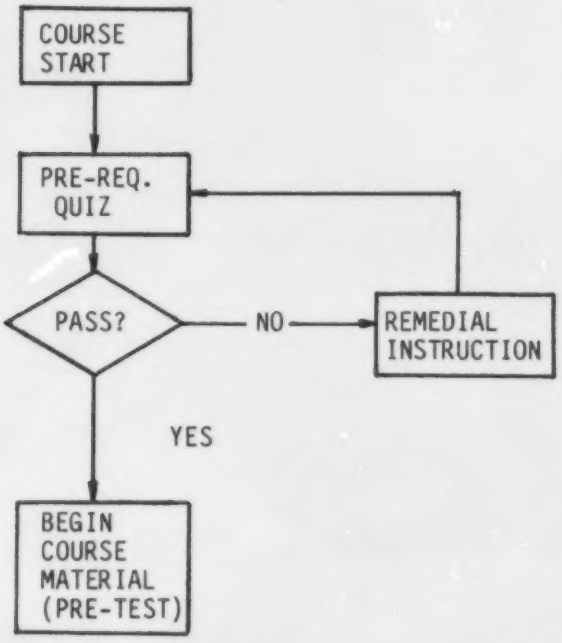
As is true with the other steps in the Systematic Approach to Training Program Design, Behavioral Objectives are not completed and then forgotten. Objectives are written before the program is prepared, but they are continually modified as experience reveals gaps, unrealistic expectations, or other ways in which they may be improved. The stated behavioral objectives now become the basis for your pursuit of all remaining steps in Training Program Design. They are the blueprint describing the skills and performances we expect the students to achieve.

PREREQUISITES

With behavioral objectives in hand, you have now established what you want the student to be able to accomplish at the end of training. Now there is a need to review the behavioral objectives you have defined to see if you have "assumed" any knowledge or skills that your students may not possess. If you have, you must add them to your program or must require prior knowledge before allowing students to begin your program.

You may wish to double-check to find out whether your audience(s) can actually do the things you have assumed they can do. You may want to prepare a quiz based solely on the stated prerequisites. Develop items that answer the question, "What must the student do to convince me that she or he has the skills I have assumed she or he has"?

Use of the Prerequisite Quiz



Administer these questions to persons presently performing the job or job function. If very few or none of them can perform according to your assumptions, and if such performance is necessary, you have only two choices: In your training program, you can either send students away for review before you allow them to begin, or you can decide to teach them the missing skill. When you decide on the second alternative, change the prerequisite notation on the task analysis worksheet and develop a behavioral objective for it by completing another behavioral objectives/criterion measurement worksheet (top portion only).

In developing prerequisites, there are several other items which should be kept in mind. Appropriate consideration of these items is also essential to the establishment and maintenance of sound, consistent prerequisites.

1. Consider the relationship to existing or planned training program - how does your program relate to existing or planned training? Will your program assume that the student has completed other programs not developed by you?

2. Alternate prerequisites - is there more than one acceptable source for training of capabilities you establish as prerequisites? If this is a revision to an existing training program and the prerequisites are being changed, are the old ones still valid?

3. Maintenance - does your prerequisite structure support changes in program material or prerequisite program material such that one will not necessarily cause massive changes to the other?

Prerequisite planning will play an important part in the design of a complete, efficient training program. It will be of increasing value as you move forward to development of your detailed curriculum plan.

CRITERION MEASUREMENT

Once you have identified your behavioral objectives, (where your training program is going) and your program's prerequisites (where your program is beginning), you need to develop tools which will tell you that the training has accomplished its goals. The term used to describe this process is Criterion Measurement. A criterion is a standard, rule, or test by which a judgment can be formed. The purpose of Criterion Measurement is to determine how closely student performance at the end of the training program coincides with the standard of performance called for in your behavioral objectives. Criterion Measurement helps to insure that students who complete the training program are able to perform the function(s) satisfactorily and also provides valuable information needed to evaluate the effectiveness of the program in preparing the student to perform that task. It is most frequently performed using a testing process and should include performance measurement items for each objective. This discussion of Criterion Measurement identifies the ways in which learning will be measured but does not show when measurement should take place. This will be investigated in the basic curriculum structures section.

In developing Criterion Measurement tools, we need to look at the ways they can be developed. To begin with, there are three basic methods of testing knowledge: oral, performance, and written.

Oral tests are used in practically every classroom training situation. They consist of the direct questions the instructor asks the students to answer during the teaching process. Oral tests guide the student through the training program while maintaining direct involvement.

Performance tests involve the student "doing" the function and being monitored or observed during performance.

Some of the advantages of performance tests are:

- Individuals like them -- they enjoy applying what they have learned.
- Bluffing is almost impossible.

- Specific difficulties are readily revealed and corrective action can be taken immediately.
- They are practically the only means of discovering whether an individual performs all aspects of a job correctly.
- They are practically the only way of revealing whether an individual becomes emotionally upset under pressure of actually doing the job, or in being observed.

Some disadvantages of performance tests include:

- They may be difficult to set up properly.
- They require considerably more time than any other type of test.
- They may be difficult to administer because of time and equipment requirements.
- They are difficult to administer to large groups. The leader must observe the performance of each participant closely. (This difficulty may be alleviated in part by the use of assistants.)

Written tests may be made up of essay questions or objective questions or any combination thereof.

Essay Questions (Subjective)

In the broad sense, an essay question is one in which the persons being tested compose their own response, stated in their own way. Such questions are also referred to as "subjective."

The advantages of essay questions are:

- They are relatively easy to construct and administer.
- They are effective in measuring an individual's ability to organize and express his or her thoughts.

Disadvantages are:

- Individuals who cannot express themselves well in writing may be unfairly penalized, even though they know the subject matter well.

- The questions usually require considerably more time to complete, since the person being tested must organize the answer and present it in detail.

- These questions also require more time for evaluation and grading. Also, they provide an opportunity for an individual to bluff.

- The answers are difficult to evaluate objectively. Sometimes the person bluffing does it so cleverly that he receives an undeserved good grade. Also, the best grades usually go to those who answered exactly as the instructor would -- even though other answers, reached with proper reasoning, might be as good or even better.

If you construct an essay-type question, remember that:

- Questions should be worded so that their meaning is clear.

- Questions should be direct and specific.

- Words such as "Why" "Explain Clearly", "Outline", "Define", "Compare", should be used in the questions to indicate the form of response expected.

- Questions that involve several points should be subdivided.

- Questions should be designed to test the individual's understanding of the test material, rather than his memory.

- Avoid questions that ask, "in your opinion, what is . . ." "give your ideas about . . " since any answer to such a question is necessarily correct.

Objective Written Questions

The various forms of objective questions were most likely conceived and developed in an effort to overcome the disadvantages encountered in the use of subjective (essay) questions.

The term "objective" refers to the method of scoring, rather than to the nature of the question. In evaluating an objective question, the rules are so defined that two instructors should be able to score the same question and get identical results.

There are four basic types of objective questions: True-False, (or Yes-No) Multiple Choice, Matching and Completion (or Fill-In-The-Blanks). Advantages and disadvantages of each type as well as points to be considered during construction are illustrated at the end of this section.

A. True-False (Yes-No) Questions

For many instructors, the True-False question has always been the main instrument of objective measurement. However, of all the techniques of objective evaluation, the True-False question is the least flexible, the most limited in what it can measure, and one of the most difficult to effectively develop.

With True-False questions, statements are given which may be either true or false. The student indicates the response with a "T" or "F", or with the words "True" or "False".

With the Yes-No question, the student indicates agreement or disagreement with the question statement.

B. Multiple Choice Questions

The preferred form of an objective question is Multiple Choice. The reason for this is that Multiple Choice questions can measure most of the important educational results, including knowledge, understanding, and judgment.

Almost any ability or understanding which can be measured by another form of examination -- objective or subjective; i.e. True-False or Essay -- can be measured by Multiple Choice questions.

A Multiple Choice question is less vulnerable to chance errors due to guessing, than are other forms of objective tests such as Matching or True-False. It requires that the individual select the best answer from a list of four or five possible answers, the problem being stated in the form of an incomplete statement or question.

C. Matching Questions

The Matching question is a special form of the Multiple Choice question. In a Matching question, an individual is given two columns of items and is required to match or pair each item in one column with an associated item in the other. Some examples would be to match:

- Short questions with answers
- Causes with effects
- Description of parts with their proper names
- Names of tools with their uses
- Signs or symbols with their meanings

A variation of the Matching question is the ranking question where only one column of items is presented and the student is to rank the item in a sequence specified by the designer.

D. Completion or Fill-In-The-Blank Questions

The Completion question consists of free-response items. This type of objective question is generally used to measure educational outcomes that are psychologically simpler than those that are measured by the subjective (essay) type of examination. In the Completion question, an individual is required to insert a word, a phrase, or a figure which is missing from a statement.

The following summarizes the advantages and disadvantages of each of the forms of Objective questions and provides some hints for their effective utilization. They should be helpful in selecting when to use each type of question in your training program. Keep in mind that, while one type of question may consistently seem to be the best choice, some variety in test presentation methods is desirable to maintain the student's interest.

TYPE OF TEST

TRUE-FALSE *

ADVANTAGES

- The test can be corrected quickly.
- The answer can be evaluated objectively; it is either true or false.

DISADVANTAGES

- Construction of a True-False question requires considerable skill to write items that are either entirely true or false, without being too obvious. Phrasing of questions is critical: one misplaced word, or even punctuation mark, can cause confusion.
- The test encourages guessing, and therefore, may not be reliable for measuring an individual's achievement.
- Because it is easy to prepare a "trick" question - and, unfortunately, this is often done - many people mistrust such tests.

IN CONSTRUCTING, YOU SHOULD:

- Be certain each statement contains only one point.
- Avoid catch or trick questions.
- Avoid use of words such as "always", "never", "usually" or "sometimes". They tend to give away the response to the statement in some cases and, in others, gives the impression that it is a "trick" question.
- Be certain the statement covers an important point, not an unimportant detail.
- Arrange true and false statements in random order.
- Use common words and simple sentences.
- Use only statements that are definitely true or false.
- Arrange the statements in order of increasing difficulty.

* "Effective Training", International Correspondence Schools (Scranton, Pa.) 1969, pp. 112-114

TYPE OF TEST

MULTIPLE CHOICE*

ADVANTAGES

- The test measures what the trainee recognizes, rather than what he recalls.
- It can be used to test the individual's ability to interpret facts, and to apply what he knows.
- The possibility of guessing is minimal.
- The test may be corrected quickly.
- Evaluating the test is completely objective.

DISADVANTAGES

- The test often takes considerable time to prepare.
- It is difficult to write test items so that the wrong answers are plausible though incorrect.
- Care must be taken to avoid including more than one correct answer.

IN CONSTRUCTING, YOU SHOULD:

- Avoid using grammatical constructions that may give a clue to the correct answer.
- Use simple, unambiguous words. Avoid verbal tricks and words that are too colorful.
- Be precise in wording.
- A particular item should not interlock with a previous item or a later item, thus providing a clue to the correct response.
- Avoid an incomplete or too general a question that neccessitates unrelated options.
- Avoid any item which can be answered solely by general intelligence, without any knowledge of the material being tested.
- Try to avoid the word "not" in the question.

* Ibid., PP. 114-117

- Make all of the options, or choices, parallel both in grammar and in point of view.
- Avoid overuse of the phrase "none of these" as an option.
- For consistency, supply the same number of options in each item of an examination.
- Refrain from the use of inappropriate or ridiculous answer choices.
- Avoid options which contain the word "always" or "never" or similar words.
- Try to keep all answer options about the same.
- Be wary of using two opposites as options, when one of the opposites is the correct answer.
- When the key is an absolutely correct answer, make the distractors (incorrect options) completely wrong, but still plausible.

TYPE OF TEST

COMPLETION*
(FILL-IN-THE-BLANKS)

ADVANTAGES

- The participant does not need to do a great deal of writing.
- The test checks the trainee's knowledge of nomenclature.

DISADVANTAGES

- The test emphasizes memory.
- Speed in reading can be a factor in effective completion of the test.
- It is difficult to word sentences so that only one response is correct.

IN CONSTRUCTING:

- Omit only key words, not long phrases: The ommission should be three words or less.
- Construct the items so that there is only one correct response.
- Do not use sentences taken directly from the text material or summary notes.
- Place the blank spaces near or at the end of the sentence.
- Make all blank spaces the same length. This practice avoids giving a clue to the length of the words in the correct answer.
- Be certain to provide adequate space for responses.

*Ibid., PP. 119-120

TYPE OF TEST
MATCHING *

ADVANTAGES

- The test provides a check of the individual's knowledge of nomenclature.
- The test requires the individual to think.
- It is possible to check relationships.

DISADVANTAGES

- It is difficult to avoid the misinterpretation of certain items.
- It requires much "hunt and find."

IN CONSTRUCTING:

- Do not use too many items.
- Number the list of items to be matched; alphabetize the list of possible answers.
- Be certain only one correct combination can be made between items in the first list and those in the second. Check every possible combination of items to be certain that an item on one list can be used properly with only one item in the other list.
- Include one or two more items in the answer list than in the other to eliminate guessing.
- Mix up the items so they are not in sequence as numbered, and most items are not opposite the corresponding ones.
- Keep all items of the test on the same page.
- Use only related material in any one exercise.

* Ibid., p. 117-119

In developing test questions, you should use the lower section of the "Behavioral Objectives/Criterion Measurement" Worksheet which was discussed in part of the earlier section entitled "Behavioral Objectives." The Criterion Measurement section of the form may be used to indicate the questions which will measure student achievement of the objective stated in the top section of the form. Provision has been made for evaluative question(s), in determining student achievement of the desired performance.

A test may be considered valid only if it satisfies its goal of measuring student performance against the objectives for the training program. A "hard" test designed to insure that not all students will answer all questions correctly is not satisfying the true goal of a test. The steps below should help ensure that your criterion measurements are effective and representative of your training objectives.

- Analyze behavioral objectives and decide how much emphasis to place on each.
- Determine the number of questions needed for each objective.

Some objectives may require only one key question to insure achievement. Others may require several types of questions in order to cover all facets of the objective.

- If an objective requires too many questions to verify attainment, it should be broken down into less-complex objectives that will be more easily measurable.
- If a question cannot be developed, the objective was not a true objective.

To summarize, remember that Criterion Measurement questions should be constructed from the training program's behavioral objectives. The questions should measure the student's performance against the objectives. Some objectives may require several test questions to effectively assess the student's performance. Others may require only one. In no case should test questions be made "hard" to insure that not all students get them correct. The intent is to insure achievement of the lowest level of acceptable performance as stated in behavioral objectives.

Once you have prepared your Criterion Measurement questions, you will be ready to start sequencing your program. The next section, "Basic Curriculum Structures" discusses the various ways in which you can organize your training program content.

BASIC CURRICULUM STRUCTURES

Introduction

Curriculum planning deserves considerable attention by the training program designer. It is a key design activity which attempts to present to varying audiences a meaningful, performance-oriented training program. All of the preceding design steps and their related assessments impact the final structure of your curriculum.

The primary audience for training programs in businesses are the people who will use the knowledge as a regular part of their job. The basic objective of the training program must therefore be to enable these people to perform the required job functions. To accomplish this, the training program curriculum must be designed to offer detailed explanations and practice for the training program participants.

As discussed earlier, during Function Analysis, it is advisable to develop a curriculum which teaches the individual how to perform specific tasks rather than to combine many functions into one to fit a job title. This is because people and their job requirements are constantly changing. In addition, some people require a general knowledge of overall applications, as well as specific practice with some applications. Others, such as management, need a general knowledge of the subject coupled with an overview of how their employees will perform the function but do not need complete, detailed training.

The resulting curriculum should therefore:

- Provide support for the varied training requirements of the work environment, i.e. new hire, management, etc.
- Allow students to proceed at their own pace and to bypass areas that are already understood.
- Provide the opportunity for refresher and cross training.
- Be easily adaptable to changing training perspectives.

In addition, course material developed for the implementation of a business system or new product should be adaptable, where appropriate, to serve in the ongoing education process as well.

Curriculum Elements

Let's begin our discussion of curriculum structures by looking at some of the terms which are used to describe parts of a curriculum. We will be using these terms extensively in the sections which follow and a clear understanding of them is critical. The terms may be broken into two major categories:

- Those which describe elements of a curriculum.
- Those which identify instructional steps within the elements.

There are three terms used to describe the elements of a curriculum. They are:

1. Topic

   A topic is the basic unit of study in a curriculum. It consists of all materials needed to explain and measure student understanding of a single concept or objective. It may contain one or more instructional techniques and may use one or more media to support the learning process.

2. Lesson

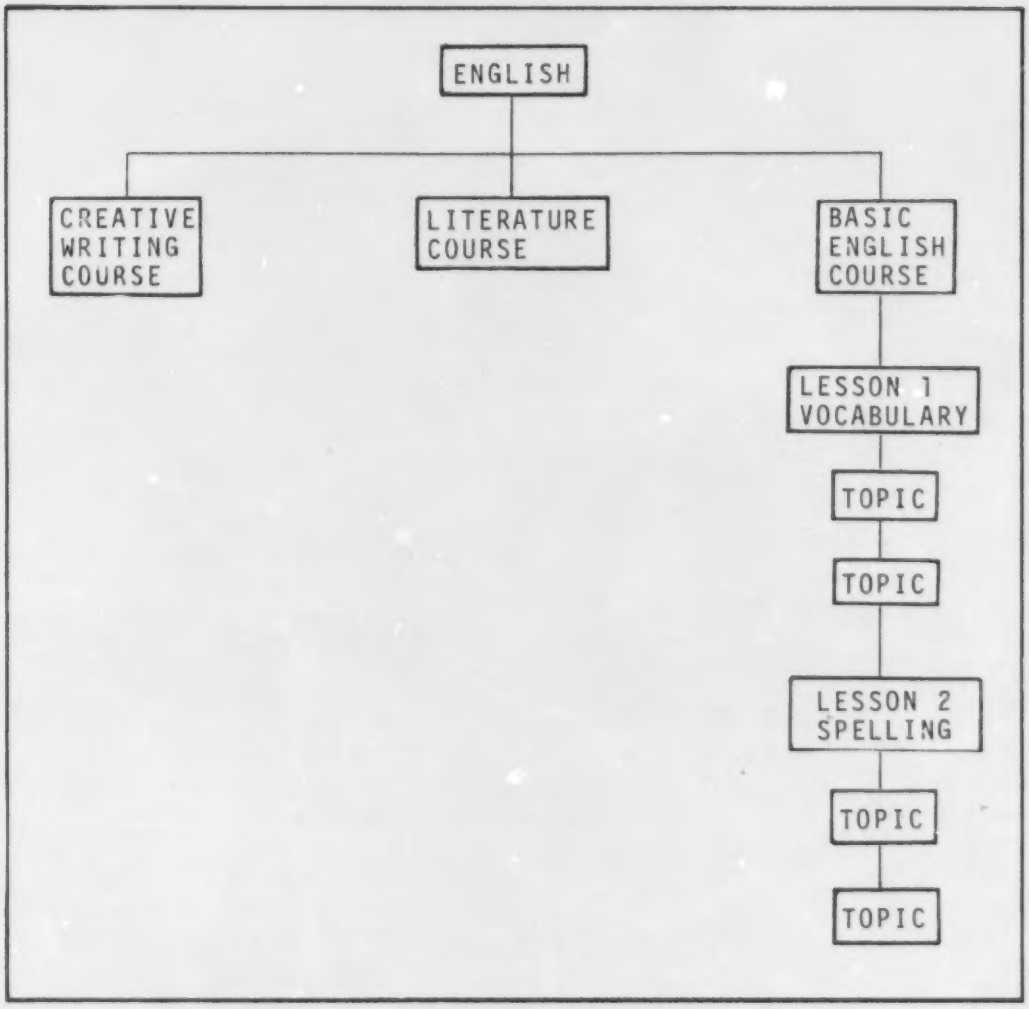
   One or more topics dealing with related information are combined to form a lesson. A lesson is a logical break point in the training. It should be at the lesson level that a successful program produces a measurable ability in a student. A lesson can be thought of as a grouping of training material which achieves one or more behavioral objectives.

3. Course

   The third aspect of a curriculum is the course. A course consists of one or more lessons which have been sequenced in such a way as to produce one or more predictable and desirable abilities in a student.

The following diagram illustrates the interrelationship of these three elements of a curriculum:

Curriculum University



Topics make up lessons, lessons make up courses and courses make up a curriculum.

Within these three basic curriculum elements there are other elements that assist the designer in structuring the curriculum. These are shown below with the element(s) to which each applies.

	Course	Lesson	Topic
Introduction	X	X	
Pretest			X
Teach			X
Post Test			X
Review			X
Summary	X	X	
Quiz	X		
Final Quiz	X		

On the following pages, these elements are discussed.

The Introduction orients the student to the course and to the lesson. It states the objectives, outlines the lessons or topics to be covered, identifies supplementary materials required (so the student can make sure they are available), and gives special instructions.

A Pretest determines in which topics of a lesson each student requires instruction. It tests the student's ability to meet behavioral objectives before beginning the lesson. A student may be allowed to bypass the teach material of a topic when the pretest question for that topic is answered correctly.

Teach - The teach section of a course provides instruction, references to outside materials, questions, and practice problems. Questions are utilized for instruction, reinforcement, student self-evaluation and to provide direction to each student's learning path. Methods such as providing assistance, supplementary training and remedial instruction may be used as necessary.

A Post-Test is used upon completion of training to help the student determine how well she or he understands the material. It may include the same questions as the pretest or it may be entirely different. This is to say that post-tests are not necessarily tied to pretests.

A Review or remedial section is used to re-present the material to insure that objectives are taught effectively, particularly concentrating on topics that were answered incorrectly on the posttest. The review may include only additional instruction, or additional instruction plus questions.

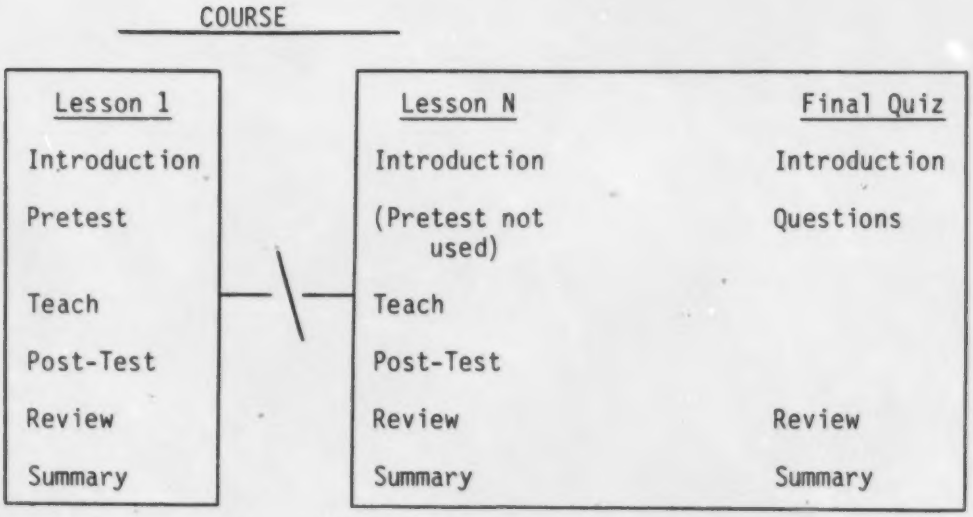
A Summary is used to restate key points covered in a lesson or a course. It appears at the end of the lesson or course and serves as a transition step to the next logical lesson or course. Summaries may be used while the student initially takes the course, or later if a "refresher" is needed.

Quizzes are graded tests given between training lessons to insure adequate understanding of the material taught up to that point. Where a pretest determines what needs to be taught, a post-test then says "OK, now that you've been taught, let's see if you learned it the way it was presented. If you miss any post-test questions, we'll go over it a second time (review) to be sure you understand. Then we'll give you a graded quiz to be sure you know what is required before you go on to the next lesson."

Quizzes are checkpoints, primarily for the instructor's benefit, to confirm satisfactory student progress in the course as a whole. Another application of quizzes is as a means of verifying prerequisites -the prerequisite quiz. This should not be confused with the pretest. A prerequisite quiz determines if a student is educationally prepared to even begin a course.

A Final Quiz is a series of questions presented at the end of a course to determine if the student has satisfied course training objectives or whether additional, remedial instruction is needed. It confirms student understanding of the course objectives.

The diagram below illustrates the relationships of the curriculum elements mentioned above.



These are the elements, then, with which the courses with a curriculum are designed.

CONSIDERATIONS FOR COURSE DESIGN

Courses should be designed, as much as practicable, to suit varied audiences. A course may be universal in nature, which means it is accessible by a large number of people. An example would be an orientation course for new employees. A course may instead be restricted, perhaps for security reasons. Management approval might be required prior to taking this type of course. A course may present an overview or general picture of the subject matter or it may detail all aspects of a job function. Sometimes a course may be used simply to highlight the key points of another course. It may be designed as a "refresher" and require prior completion of the detailed version as a prerequisite.

Whatever the intended use for the course, the justification for any of the considerations above is to provide effective training to the appropriate audience in the least amount of time. Personnel, such as new hires and management, must be presented with what they need to know to perform the function and nothing more. They must also be able to bypass material they already understand. Only with an intelligent, systematic approach to curriculum design can effective, efficient training take place.

The understanding about the substance and intent of a course, points out the need to individualize a student's training experience. Individualizing instruction can be one of the keys to the effectiveness of any course. Each student's learning experience should be personalized according to experience level, learning ability, and the job functions for which she or he is being trained. This is important in insuring that each student will receive only the training required.

One way to promote individualized instruction and to ensure the student is taught only what is needed is by means of pretesting.

Pretesting

A test may be given before a lesson or a topic to determine how much of the instruction the student actually needs. The pretest includes at least one question for every topic in the material. Then, if the student shows she or he can answer the question correctly, she or he is allowed to bypass the related teach topic. The goal of the pretest is to eliminate unnecessary instruction as appropriate for each student.

Pretest questions may be grouped together so the student answers all of them before seeing the instruction for any questions missed. The necessary instruction is delayed until all pretest questions are answered. Or, the questions may be scattered throughout the material so the student sees appropriate instruction immediately following a missed question.

The figure below represents the two ways that a pretest can be included. The "Delayed" instruction method is shown on the left. The student answers all questions before seeing any instruction. The "immediate" instruction method is shown on the right. Appropriate instruction is presented immediately when the student misses a pretest question. In both, the pretest question 3 was answered correctly.

Delayed Instruction Method	Immediate Instruction Method
Student Enter	Student Enter
Pretest 1 (incorrect)	Pretest 1 (incorrect)
Pretest 2 (incorrect	Topic 1
Pretest 3 (correct)	Pretest 2 (incorrect)
Pretest 4 (incorrect)	Topic 2
Topic 1	Pretest 3 (correct)
Topic 2	Pretest 4 (incorrect)
Topic 4	Topic 4
Post-Test	Post-Test

Another way of addressing needs to individualize instruction, and the subject of the next several paragraphs, is a modularized curriculum based on specific job functions.

Modularity

A module is a self-contained unit of instruction that includes as much material as necessary to teach one specific job function. A module can contain more than one instructional technique. It can consist of a lecture, reading material, videocassette recordings, a CAI course, an on-the-job training session (OJT), etc.

Training modules, once developed can be selected by the training group or by the employee and manager based on the employee's background, experience and training requirements. Each employee can take just those modules needed.

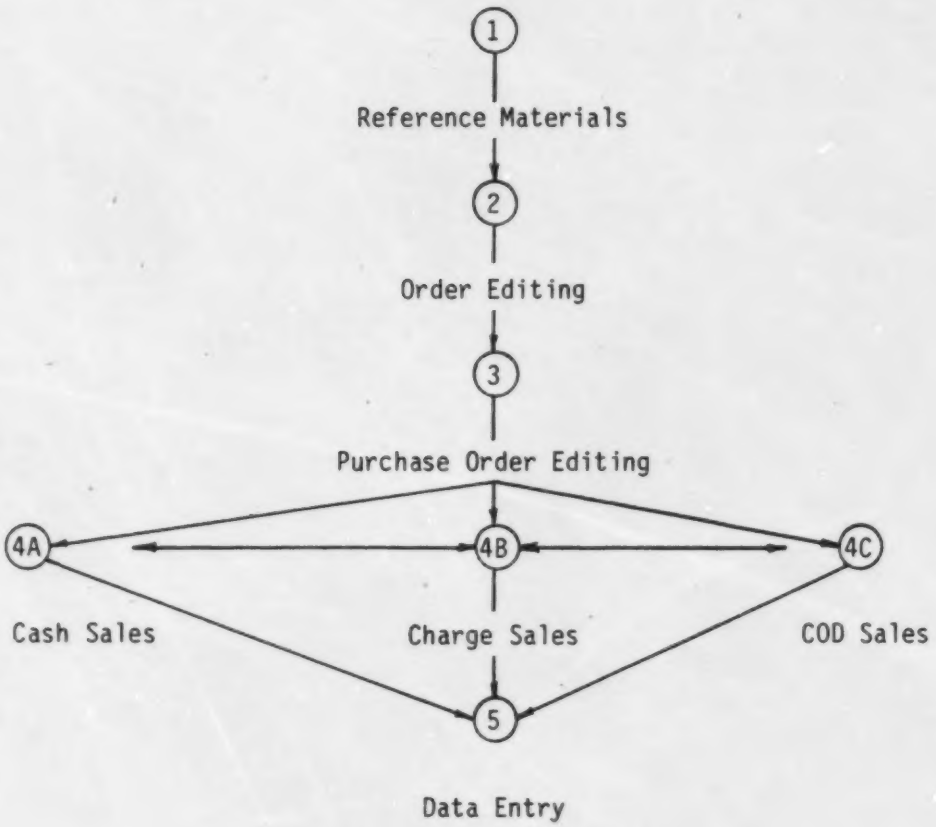
This modularized approach is in contrast to the more traditional training programs in which each course teaches the total job, not just one job function. Traditional programs usually present all instruction to each employee at one time and often ignore differences in employee experience and actual job assignment. Modularity, on the other hand, can provide a training program that can address the training needs of each employee in a flexible and efficient manner.

Modularity meets our needs for a function, rather than a position-oriented curriculum. It enables the designer to prepare a flexible curriculum and helps satisfy the requirement to provide several versions of the same program to meet the needs of different audiences.

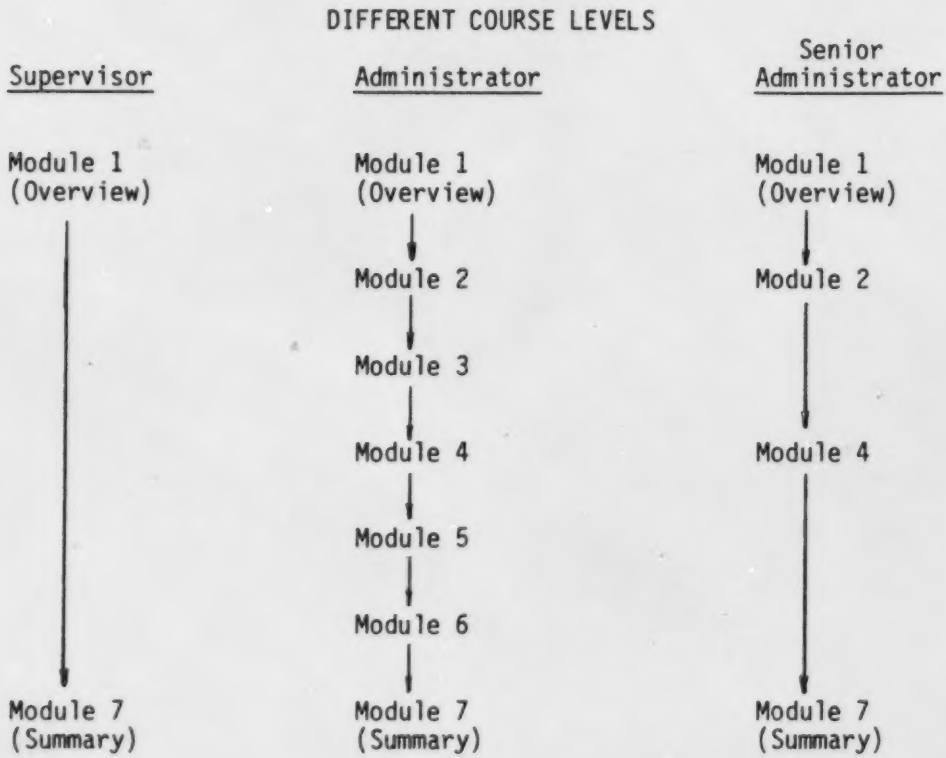
Modularity solves the problem of training job functions that may be similar in all but a few respects. By determining the student's requirements at either the start of training or at a later point, only the appropriate modules are presented.

The following illustration shows how modules can be constructed to train order processing. By determining the student's requirements in Module 3, the appropriate modules are presented from 4A, 4B, and 4C. All students then complete Module 5.

USE OF SUB-MODULES



Another type of modularization allows employees performing different jobs in the same area to receive only the level of instruction necessary to carry out their jobs. The figure below depicts a course that provides instruction for three levels of employees in the same working group. Note that while the administrator takes all training modules, the senior administrator and supervisor take less, based on what they need to perform their responsibilities effectively. On the other hand, the senior administrator and supervisor should be able to take all modules if they so desire.



If standard modules are created by individual job functions or skills, course designers may be able to use or re-use these modules in various combinations to create new curriculums. For example, the figure below shows how the skills for 3 separate jobs can be addressed by using selected modules from a basic curriculum.

With this approach, completely new courses can be produced using many of the same modules, or each module can be a standalone mini-course to be taken as needed. This process can help reduce course development time and provide standard instruction across organizational lines.

COMPARISON OF REQUIRED SKILLS

Skills	Admin Clerk	Credit Trainee	Finance Officer
Interpret Financial Data		X	X
Interpret Non-Financial Data	X	X	X
Operate Calculator	X	X	
Operate Adding Machine	X		
Operate Dictating Unit			X
Operate Typewriter	X		
Review Incoming Correspondence		X	X
Present Verbal Reports		X	X
Write Proposals		X	
Prepare Special Projects		X	
Prepare Forms	X	X	X
Open Commercial Accounts			X

Modularity benefits not only the person being trained, but the user departments, plus the training can be easier to absorb. In addition, if each module is relatively short, the impact of training on the day-to-day job can be minimized. By training only if and when the skill is required, retention may be improved and overtraining reduced.

The modular approach allows the training group to address the training requirements of more people with fewer programs. In addition, because the modules are complete and self-contained, they can be changed with minimum impact on the total training program. Costs per student may decrease when standard modules can be used by a large potential audience.

Modularity aids in standardizing training across organizational lines if all take the same modules. The result can be a minimum of retraining with employee reassignment.

Modularity thus greatly assists in minimizing curriculum development time while maximizing the productivity of the training staff.

The following steps are suggested when designing a modularized training program:

1. Perform all training program design steps described to this point in this manual. Module identification is based on a thorough identification of the steps required to perform each task. It is important that all task steps be identified and have a performance level (skill, knowledge, awareness) assigned for each audience to be trained. This will insure that the modules address the largest possible audience where performance levels are the same.

2. Identify task steps already taught by existing training material. Implementation of a modular curriculum can be speeded up if existing training materials can be used. To accomplish this, an inventory of all programs offered should be taken and the functions listed that are taught in each. Care should be taken to insure that functions taught by on-the-job training and formal classes outside of the company are also included.

3. Create new training modules. Compile a list of all the functions which must be taught in the training program for which no suitable training material or program exists. These functions, which should not include those functions to be taught on the job, will become the basis for your curriculum planning effort. In addition, if another curriculum teaches several of the skills you must teach, give some consideration to suggesting rearrangement of those modules into a format which is more in tune with your requirement.

4. Prepare an outline of module relationships for the various audiences. Identify which audiences should take which modules. This is to provide management with information for planning individualized training programs for their employees.

5. To help insure that the modules remain valid, each job should be reviewed periodically (about every 6-12 months) to identify the functions required and their relative importance. Changing management priorities and employee characteristics should be considered. In addition, whenever a change in procedures or in business functions is made, a new function survey should be made to insure that there is training for the necessary functions. This constant review is essential if the modular training program is to stay current.

Documentation requirements of a modular curriculum will vary considerably, depending upon curriculum variables, one being the media used to perform the training. At a minimum however, documentation must include references for potential users and other training program developers, an indication of outside modules used, and the specific documentation to support future requirements for curriculum modifications.

Modularity, of course, will bring with it a need to make some additional curriculum considerations. Those considerations must be made to insure the development and maintenance of a finely-tuned, effectively presented curriculum.

Among the items to consider are the following:

- When instruction is presented through a series of individual modules, the need for control becomes more important so that the employee and management know what has been accomplished and what is next. For example, a series of questions about the student's background and job requirements should be used initially to set up the modular training program for the individual employee. At the end of each module, the employee can then be directed to the next appropriate module. This type of direction will be necessary whether the succeeding module is to be taken immediately or after a delay of several weeks or months. The student's training record should be maintained indefinitely.

- Curriculum planning must be performed with full awareness of and allowance for the collective experience of the training staff, both in training as a whole and in using the media which will be employed. Also allow for the staff's technical expertise in the subject matter.

  Care must be taken to insure that the developed modules are meaningful. Don't get so involved with narrowing down skills that you lose sight of the users who must ultimately learn from the group of modules.

- Don't make teaching modules too short. It would be better to provide optional problems to allow the student to exercise the newly taught skill as much as desired. If the module is too short, it may not seem significant or be remembered.

- Insure a smooth transition from module to module (or course to course) even if there is a time lag between training sessions.

- Insure changes to one module do not affect information in other modules, or else perform changes in other modules as well.

- Consider the need for an overview of each job for management and the employee. This becomes more important as the training is broken down into more and more modules. An overview at the beginning of training can identify what the individual modules will be and how they fit into the total job or job function.

When you have completed the definition of your training modules, you are ready to begin planning your curriculum in greater detail. It is now appropriate to begin identifying the contents of each of the three basic elements of your curriculum. The suggested approach is a technique known as top-down planning.

BUILDING THE CURRICULUM

To begin building a curriculum, it is necessary to analyze, to group, and to sequence the objectives identified in order to isolate the major points to be covered. Each major point is then analyzed to provide successive levels of detail.

To accomplish this, you will use an approach called "Top-Down Planning."

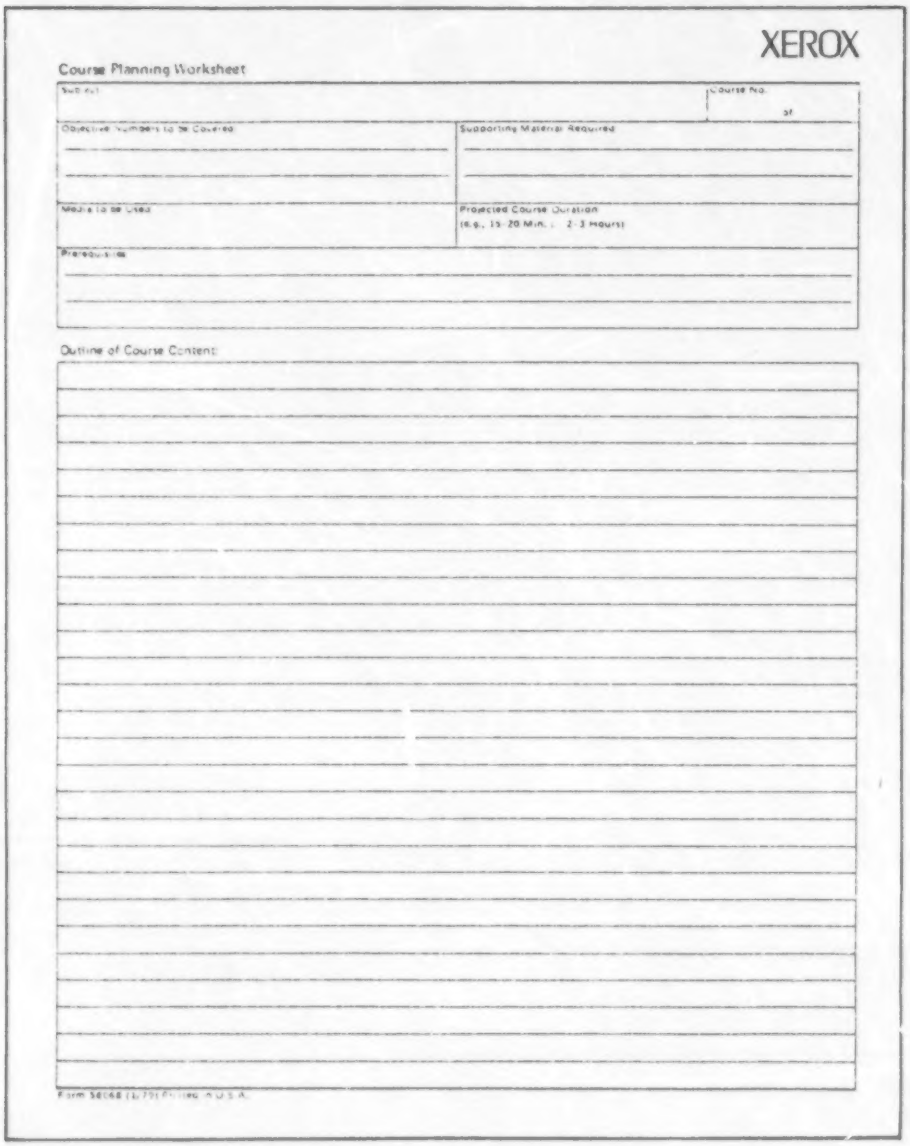
With top-down planning, you start with the very broad subjects you wish to train. These would be the courses you wanted to use to address your training program. You then identify the sequence in which these courses are to be taken. Then you take each of these courses individually and break it down into its logical groupings or lessons. Again, attention is paid to sequencing the material. With lessons identified, the actual topics within the lessons are then developed with pretest, teach, post-test and review material provided as dictated by the material.

Having performed the topic development at the lowest level, you now come back to the lesson level to compile the various media, reference materials, etc., which have been identified. This is done for each lesson and you then go back to the course level to compile the lesson materials for the entire course. You have gone from the "top", "down" to the lowest level to do the actual design work, and then have come back up to the "top" to pull all of the identified elements together which result in a systematically developed detailed curriculum plan.

Course Planning

Course planning is the "first cut" at the completed "objectives" worksheets to break them into related groupings to become individual courses. Specific steps to be performed by the designer during course planning are described in the Design Documentation Package. A sample course planning worksheet is shown below:

Course Planning Worksheet



XEROX

Course Planning Worksheet

Subject

Course No.

of

Objective Numbers to be Covered

Supporting Material Required

Media to be Used

Projected Course Duration
(e.g., 15-20 Min. ; 2-3 Hours)

Prerequisites

Outline of Course Content

Form 58168 (1-79) Printed in U.S.A.

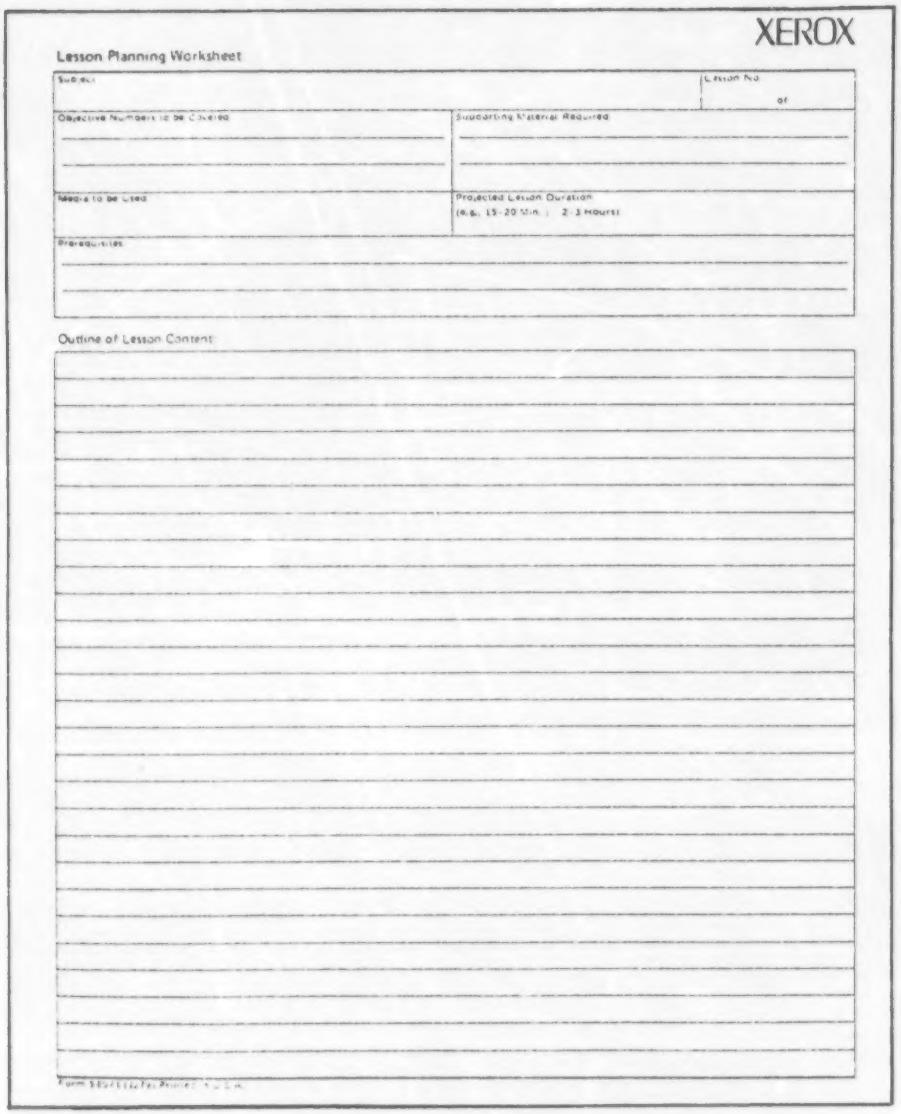
Lesson Planning

The general content of each lesson of a course is defined during initial course planning. Further detail on each lesson may be provided by use of the lesson planning worksheet.

This worksheet is used to outline the structure and content of the lesson, and to indicate behavioral objectives related to the lesson.

Teach topics are merely listed in the lesson outline after the detailed planning of each topic is specified in the topic planning step.

Lesson Planning Worksheet



XEROX

Lesson Planning Worksheet

Subject

Lesson No.

of

Objective Numbers to be Covered

Supporting Material Required

Media to be Used

Projected Lesson Duration
(e.g. 15-20 Min. | 2-3 Hours)

Prerequisites

Outline of Lesson Content

Topic Planning

The topic planning sheet (below) is used to specify the content of each teach topic. In addition, pretest and post-test questions and review material for the topic may be noted.

Refer to the DDP for worksheet completion instructions.

Topic Worksheet

XEROX

Topic Planning Worksheet

Lesson	Topic
Pretest Questions (Permits skipping of topic)	Post Test Question (Criterion Measurement Question #_____)
Teach	Review
Media	Media

Form XR0172 (1/74) Printed in U.S.A.

Sequencing

The sequence of the course must be logical and should enable the student to tie together related items. Units should be sequenced in an order that is most meaningful to the student. Types of sequencing are discussed below: *

1. From general to specific. Students mean something different than instructors when they agree they would like instruction to proceed from the "simple to the complex". Whereas instructors tend to be comfortable with sequencing from the elements of a subject toward the big picture, students generally find it more meaningful to move from the big picture toward the details. Once the student knows the subject matter, a specific-to-general sequence can be meaningful also.

2. Logical sequencing. Sometimes the subject matter dictates that one unit be taught before another. For instances where it is necessary to teach one thing before another, do so. But be careful. There isn't nearly as much justification for this kind of sequencing as instructors would like to believe. For instance, a mechanic does not have to know everything about mathematics before being taught to repair an automobile; he doesn't need to know the theory of the function of oil to perform an oil change.

3. Skill sequencing. This type of sequencing is based on the principle that, if a person has to leave a course before finishing it (for whatever reason), it is better to send that person away with the ability to do a complete, if lesser, job than to be able only to talk about a job. For example: teach a person everything needed to know to become a basic mechanic, then teach what is needed in addition to become a master mechanic.

4. Practice the total job function. Some courses systematically give a student knowledge and practice in each element of a job function, but allow the course to end without ever giving the student an opportunity to practice the entire job function. The student needs a chance to practice the entire job function as much as practice is needed in its components. At least five percent of course time should be devoted to such practice, during which the student actually practices performing the total job function under conditions as similar as possible to those to be faced when the training is over.

* Robert F. Mager and Kenneth M. Beach, Jr., "Developing Vocational Instruction", Fearon Publishers (Palo Alto, Ca.) 1967, pp. 59-61

Outlining

Once the sequence of the material has been determined, an outline of the contents for each course should be prepared. The steps to be performed are described in the DDP. Some key considerations are given below:

- Prepare the outline: a roman numeral for each lesson and a number for each topic within the lesson.

  Note: Using this numbering method will be an aid if you write a CAI course because it relates directly to CAI course structuring principles.

  The headings on the outline should be clear enough so that they identify what the course(s) and lesson(s) will contain.

- Include in the outline all topics identified.

An example of a good outline is shown on the next page.

COURSE OUTLINE EXAMPLE

COUNSELING COURSE

I. Introduction
   1. Course Objectives
   2. Course Content

II. Counseling Defined
   1. What is Counseling
   2. When to Counsel
   3. Qualities of a Counselor
   4. Why Counsel
   5. Steps of the Counseling Session
   6. Test
   7. Review

III. Preparing to Counsel
   1. Gathering Facts
   2. Handicaps to Successful Counseling
   3. Positive/Negative Counseling Conditions
   4. Time to Allot for a Session
   5. Proper Location for Counseling
   6. Test
   7. Review

IV. The Counseling Session
   1. Types of Sessions
   2. Techniques
      A. Techniques
      B. Non-Directive
      C. Non-Verbal Communication
   3. Basic Steps in a Formal Counseling Session
   4. Cautions
   5. Ending a Counseling Session
   6. Test
   7. Review

V. Counseling Follow-Up
   1. Methods for Determining Behavior Change
   2. Recognizing Employee Actions
   3. Procedures to Reduce Disciplinary Counseling
   4. Scheduling Follow-Up Sessions
   5. When to Notify Upper Management
   6. Test

In this section, you reviewed some basic curriculum structuring considerations. You are now ready to begin building your actual detailed curriculum plan. The next section will provide assistance in this effort.

DETAILED CURRICULUM PLAN

Having evaluated alternative media, and having looked at various methods of structuring your curriculum, the next step is to develop a comprehensive curriculum plan which acknowledges media and instructional strategy decisions and involves actual preparation of the course material the student will see. Development of this detailed curriculum plan should include:

- Completion of the course, lesson and topic planning worksheets, making sure all subject matter is included.
- A clear identification of the media and instructional strategies to be used, including the rationale for their selection and the alternatives considered.
- A review of the course content and sequence to evaluate the media relationship to contents and to insure smooth transitions between both media and content. (If CAI is selected as a media, "review worksheets" must be completed and become part of the detailed curriculum plan--see next page.)
- A clear identification of the different individualized curriculum paths based on the expected knowledge level of the audience.
- Student completion time estimates for each course and lesson.
- Finally, a complete reassessment of each course design step to insure its accurate and complete incorporation into your proposed plan.

The forms in the Design Documentation Package will assist you in tying together your curriculum. These forms, when completed appropriately, will be major pieces of the design package you will need to submit for approval of your proposed curriculum.

Review Worksheet

(To be used only if CAI has been identified as a medium)

This worksheet is designed to help you, the designer, provide a review capability to the student for the portions of the program to be taught via CAI. Information to be completed is minimal yet when placed in sequence with topic planning worksheets within and at the end of lessons, the review worksheet helps both the designer and reviewers to see the course as the student will see it in terms of content, course flow, review points, sign off points and appropriate transitions, prior to the designer beginning actual CAI worksheet completion.

The worksheet contains suggested wording for the circumstances noted above. The designer merely checks the appropriate area being used and places the worksheet in with the topic planning worksheets in the desired sequence. Wording may be revised as appropriate.

The Review Worksheet is shown on the following page. The instructions for completing it are contained in the DDP.

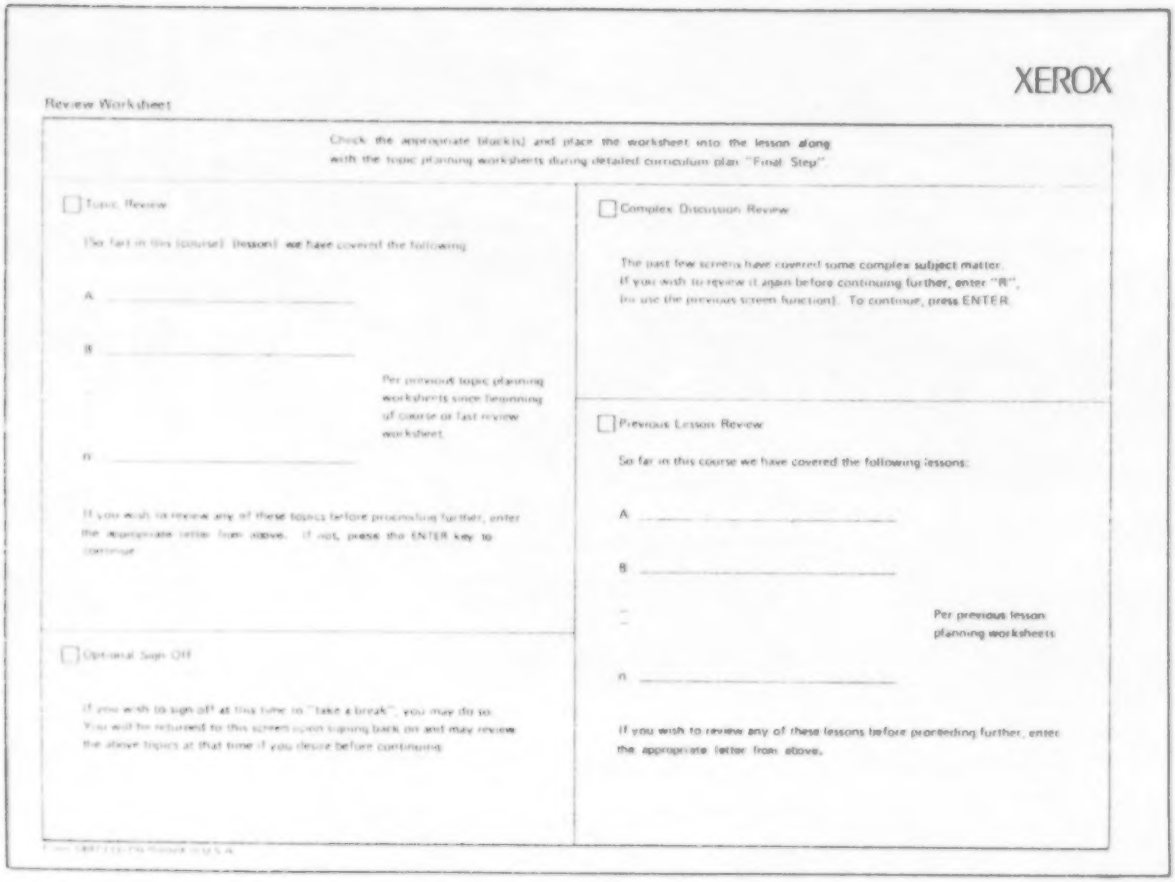
CA1201

"Training Program Design"

		* Projected Duration
Introduction - The Systematic Approach - How People Learn		2–2.5 hrs.
Lesson		
1.	• Function Analysis - the student learns, in general terms, to describe that which someone does when performing the job to be taught.	3–3.5 hrs.
	• Task Analysis - covers specifying job functions in terms of specific tasks performed and the steps within each task.	
	• Audience Assessment - discusses the importance of knowing the target audience and the variables to be considered.	
	• Quiz on lesson 1.	15–30 min.
2.	• Media Assessment - having discussed the "what" and "who" above, this lesson looks at some of the possible "hows" of training material presentation. The selection of media does not occur until the last step, howe er.	3–3.5 hrs.
	• Quiz on lesson 2.	15–30 min.
3.	Behavioral Objectives - this lesson teaches the student how to prepare effective training objectives that determine what is the expected end behavior of the person who is to take the training.	2–2.5 hrs.
4.	Prerequisites - this lesson answers the question: "Now that we know where the student is expected to be, how far along is the student already?" Prerequisites identify the starting point of the training. Objectives identify the end point. The material in between now becomes the scope of the training program.	2.5–3 hrs.
	Quiz on lesson 4.	15–30 min.
5.	Criterion Measurement - in this lesson, the student learns how to develop criteria which will measure achievement of the defined objectives.	2–2.5 hrs.
	Quiz on lesson 4.	15–30 min.
6.	Detailed Curriculum Plan - this lesson discusses techniques for sequencing the training material. Topics involve curriculum elements, pretesting, modularity, top-down planning, final media selection and outlining.	3.75–4 hrs.
	FINAL QUIZ	45–60 min.
		18–24.5 hrs.

*Above projected duration times include terminal time as well as time for reading and assigned exercises. They do not include time for design of the assigned training program.

REVIEW WORKSHEET



XEROX

Review Worksheet

Check the appropriate block(s) and place the worksheet into the lesson along with the topic planning worksheets during detailed curriculum plan "Final Step".

☐ Topic Review

(So far in this [course] [lesson] we have covered the following:

A _____

B _____

Per previous topic planning worksheets since beginning of course or last review worksheet.

n _____

If you wish to review any of these topics before proceeding further, enter the appropriate letter from above. If not, press the ENTER key to continue.

☐ Optional Sign Off

If you wish to sign off at this time to "take a break", you may do so. You will be returned to this screen upon signing back on and may review the above topics at that time if you desire before continuing.

☐ Complex Discussion Review

The past few screens have covered some complex subject matter. If you wish to review it again before continuing further, enter "R". (to use the previous screen function). To continue, press ENTER.

☐ Previous Lesson Review

So far in this course we have covered the following lessons:

A _____

B _____

Per previous lesson planning worksheets

n _____

If you wish to review any of these lessons before proceeding further, enter the appropriate letter from above.

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After completing all the steps discussed in this manual for the training program you are designing, it is appropriate to have all your efforts reviewed for a final time and approved before the courses are actually developed.

This should involve someone actually performing the job and some level of management related to the job. If your medium is CAI, you should also include someone closely involved with that medium to ensure technical accuracy.

After this final review and approval, development can begin on the courses you have identified through your design efforts.

Should you have selected CAI as one medium, you will be interested in taking CAI202 - "CAI Course Development."